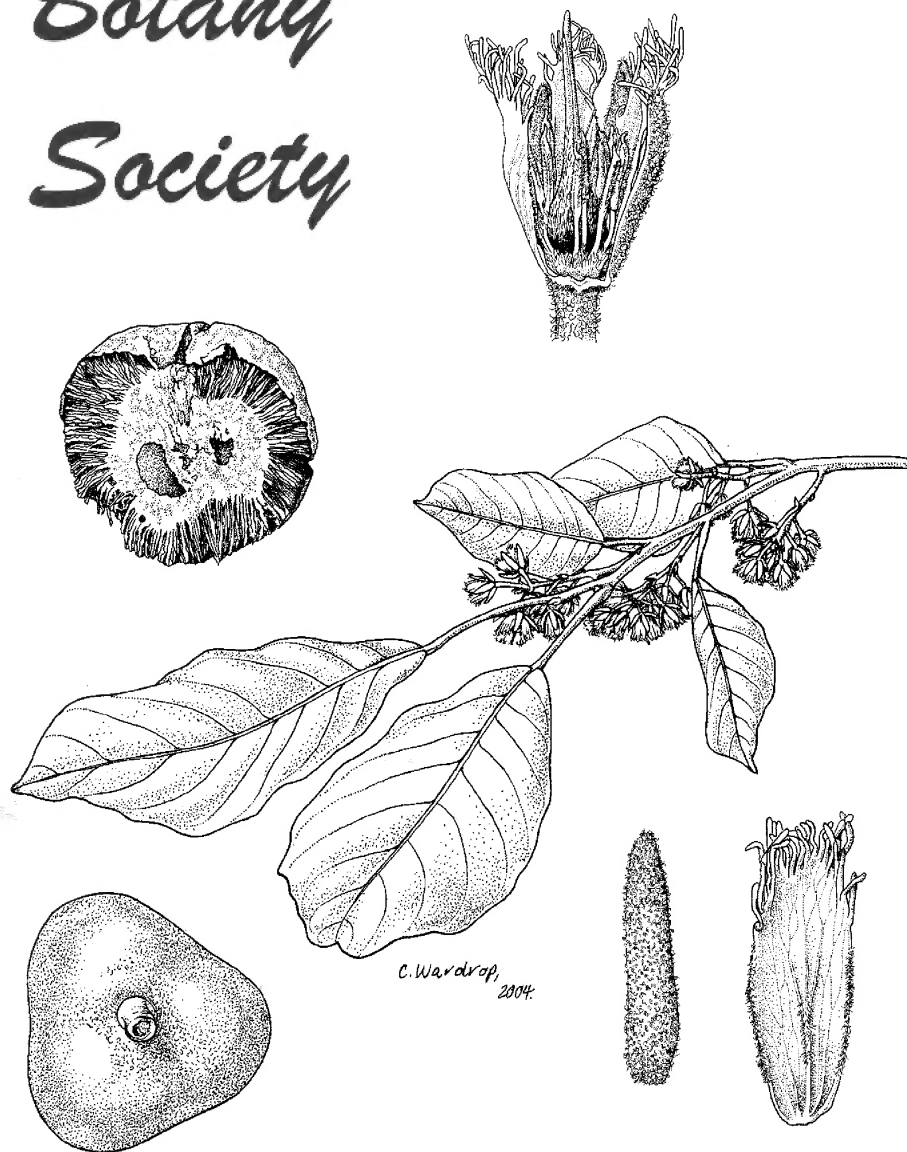


ASBS

*Australasian
Systematic
Botany
Society*



Newsletter

No. 165 December 2015

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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Other constitutional bodies

Hansjörg Eichler Research Committee

David Glenny
Greg Leach
Sarah Matthews
[Vacancies to be filled by Council shortly]
Chair: Dan Murphy, Vice President

Grant application closing dates

Hansjörg Eichler Research Fund:
on March 14th and September 14th each year.
Australian Conservation Taxonomy Award:
on 22nd May 2015, 2016

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Papua New Guinea Botanical Society

Advisory Standing Committees

Financial

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David Cantrill
Bob Hill
Ad hoc adviser to Committee: Bruce Evans
Chair: John Clarkson, Treasurer

Grants Policy

Darren Crayn
Alexander Schmidt-Lebuhn
Jen Tate
Peter Weston
Peter Wilson
Chair: Dan Murphy, Vice-President

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ASBS Facebook Group

Viewable currently to any member of Facebook;
permission to post by application to administrators.

Administrators

Todd McLay, email: tmclay@unimelb.edu.au
Mike Bayly, email: mbayly@unimelb.edu.au

Cover image: *Elaeocarpus sedentarius* Maynard & Crayn.

Leafy twig with clockwise from top: open flower, petal,
sepal, proximal end of fruit, longitudinally sectioned fruit.
Artist: Catherine Wardrop (NSW). *With permission of*
CSIRO Publishing.

Publication dates of previous issue

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ASBS Web site: 16th Nov 2015. Printed version: 19th Nov 2015.

From the President

I'd like to start this, my first missive in this role, by stating how honoured I am to be elected President of the ASBS for 2016. It is humbling to be entrusted with this important role, and I will endeavour, as part of Council, to do my best to help the Society meet the challenges and seize the opportunities of the coming years. This can best be achieved collectively, so I encourage all members to contact me at any time to share any and all ideas aimed at improving the ASBS and the service it provides to the members. Please email me at asbs.president@anbg.gov.au.

ASBS 2015 Conference, Canberra

This year's conference was a great success, and as always a great opportunity to renew friendships and begin new ones. And one of the most important functions of conferences is the exchange of ideas and building of professional networks – if it is said that a stranger is just a friend you haven't yet met, then in the context of ASBS conferences, a stranger is just a collaborator you haven't yet worked with.

On behalf of the Council I thank all participants in the 2015 ASBS conference for their support for this most important annual Society occasion, with a special mention reserved for the keynote speakers (Vicki Funk, Craig Moritz and Ilse Breitwieser). We hope we can count on your continued support. The conference organising committee is due special mention for putting on a great show. The notables are Anna Monro, Chris Cargill, Brendan Lepschi, Cath Reed, and Jim Croft, but no doubt there were many other helpers before, during and after the event, to all of whom we are grateful. The scientific program was interesting and excellent, expertly curated by the Scientific Program Committee

(Alexander Schmidt-Lebuhn, Sarah Mathews, and Lydia Guja), and efficiently managed by the session chairs.

I congratulate the conference prizewinners (listed below: Fig. 1), and on behalf of the Society I thank all of the candidates for their efforts which made the work of the judging panel (Sarah Mathews, Russell Barrett and Peter Weston) exceedingly difficult. CSIRO Publishing is acknowledged for sponsorship of the student best presentation and best poster awards.

- The winner of the Pauline Ladiges award for best presentation by a student was Ben Anderson – “Using genotyping by sequencing to resolve the evolutionary relationships in a species complex of Australian arid zone grasses (*Triodia*)”
- The winner of the prize for best poster by a student was Charles Foster – “Estimating the evolutionary timescale of flowering plants using complete cp genome sequences”
- The winner of the Bob Anderson Memorial Student Award was Janet Gagul. This award is to support registration fees of a student who attends the annual ASBS conference and presents a spoken or poster presentation. In consideration of Bob's institutional relationships, priority is given to a student from a developing country.

ASBS 2016 is in Alice Springs, a vibrant, culturally diverse city located in Australia's red heart. I have no doubt the organisers will deliver a program of sessions, excursions and social events to rival any previous ASBS conference, and it will be a great opportunity for those of us

Australasian Systematic Botany Society Inc.

Nancy T. Burbidge Medal

This prestigious award is presented to individuals who have made an outstanding contribution to plant systematics in Australasia.

Council invites Society members to make formal nominations for the 2016 award.

A nomination should comprise a formal letter with supporting information, and the names of two referees who have agreed to provide additional written support if invited to do so.

Nominations must reach the Secretary by 4th March 2016.

For more information, please contact Leon Perrie at asbs_secretary@anbg.gov.au



Fig. 1. Student awards at the recent ASBS conference in Canberra. From top: a, Ben Anderson receiving the Pauline Ladiges Award from CSIRO Publishing's Chris Anderson; b, Charles Foster receiving the award for best poster; c, Darren Crayn presenting Janet Gagul with the Bob Anderson Memorial Student Award

Ph. a, c, Murray Fagg; b, Mike Bayly

who have never seen Australia's red centre to experience it with friendly and knowledgeable colleagues. I hope to see you there.

Council changes

I would like to thank the immediate past Council, and indeed all past Councils, for having left the Society in such robust financial shape, so much so that I frequently goad John Clarkson (Treasurer) to be more adjectivally diverse when describing the Society's position – he's thoroughly worn out 'healthy'. Good management over a long period has ensured that the Society's funds, bolstered by the extraordinary generosity of Marlies Eichler over many years, have been put to the best possible use. The membership is stable at around 300, a strong indicator that the Society continues to be relevant and delivers value to its members. Immediate past President Bill Barker and Councillor Kelly Shepherd leave the Society having contributed much to its success over the past few years (Fig. 2). I warmly welcome Jennifer Tate to the Councillor role vacated by Kelly, knowing she will make every bit as valuable a contribution as Kelly did. The remainder of Council members continue for 2016, albeit with some shuffling of responsibilities – Dan Murphy moves from Councillor to Vice President and Mike Bayly from Vice President to Councillor.

The future...

It is widely acknowledged that there has been a decline in our workforce over the last few decades, yet the Australasian plant systematics community continues to function at a high level. We are world renowned for our outputs and our innovation – the acronym soup of virtual infrastructure we have built - AVH, ALA, APNI, APC, NZ eFlora, LucID, interactive keys (e.g. Wattle, Euclid, etc) - is the envy of the world. We have a lot to celebrate, and a great deal to look forward to. But our success will endure only if we remain alive to opportunities and not dwell on the past. Introspection and retrospection, if not counterweighed with

Fig. 2. Enter stage left; exit stage right. In Canberra at the ASBS meeting: members of the incoming 2015/16 ASBS Council (left six) and the outgoing 2014/15 (right six): from left, Darren Crayn, Jen Tate, Leon Perrie, Mike Bayly, Dan Murphy, John Clarkson, Kelly Shepherd, Bill Barker.

Ph. M. Fagg.



optimism, will not grow our science. The Decadal Plan for Taxonomy being developed in part by the Society is our attempt to seize the day and argue that our science has a core role to play in the future prosperity (in the broadest sense) of nations. I encourage all to participate in the next stages of the development of this plan, an important part of which will be a series of surveys designed to measure our capacity (workforce, infrastructure, etc). While Kevin

Thiele warns of being ‘surveyed to within an inch of your lives’, I’d give it a few metres at least.

In closing, I think it is an exciting time to be a plant systematist in Australasia, and an exciting time for the Society. The future is not without challenges, but is, I believe, to be embraced not feared.

Darren Crayn
Dec 2015

ASBS Inc. business

Hansjörg Eichler Research Fund: September 2015 grants

This round we had five applications. Grants were awarded to the following three students.

- Charles Foster, University of Sydney: Molecular systematics and biogeography of *Pimelea* Banks & Sol. ex Gaertn. (Thymelaeaceae). \$2000.
- Maren Preuss, Victoria University of Wellington: Biodiversity of red algal parasites from New Zealand. \$2,000.
- Heather Merrylees, The University of Melbourne: Phylogeny, classification and phylogeography of the *Acacia myrtifolia* group. \$2,000

Unsuccessful applicants were provided with

feedback on their applications and we have encouraged them to resubmit in future rounds.

As usual, the efforts of the ASBS Research Committee in assessing these grant applications is greatly appreciated.

The next round of applications for Eichler grants will close on March 14th 2016.

Mike Bayly
ex officio Chair Research Committee

Council meetings in 2015

The 2014-2015 Council met by teleconference in March, and in person on the 29th November, immediately prior to the Society’s conference. All of the outgoing Council was in attendance for the November meeting, along with Darren Crayn as incoming President. A postponed flight prevented incoming Councillor Jen Tate from attending.

We were joined for specific agenda items by Judy West, with whom we discussed how plant systematists might be celebrated within the Australia National Botanic Gardens, and Alexander Schmidt-Lebuhn, for discussion of the recommendations of the Grants Policy Standing Committee.

Thanks to Anna Monro for organising a venue at the Australian National Botanic Gardens for the November meeting. The November meeting concluded with thanks and goodbyes to Bill Barker and Kelly Shepherd, both of whom are leaving Council.

Leon Perrie, Secretary

37th Annual General Meeting of the Australasian Systematic Botany Society Inc. – Minutes

Discovery Lecture Theatre, CSIRO's Black Mountain Site, Canberra, Australia
30th November 2015

Meeting opened at 4.50 pm.

Present: Bill Barker (President), Mike Bayly (Vice-president), John Clarkson (Treasurer), Leon Perrie (Secretary), Kelly Shepherd (Councillor), Dan Murphy (Councillor), and 62 members.

1. Opening remarks and welcome.

Meeting chaired by Bill Barker.

2. Apologies.

Wendy Cooper, George Plunkett, Marg Stimpson.

3. Confirmation of Agenda.

Isobel Crawford asked that divestment be added to General Business.

4. Minutes of the 2014 Annual General Meeting.

It was proposed that the minutes of the 36th Annual General Meeting (as published in the Australasian Systematic Botany Society

Newsletter Number 161) be accepted.

Moved: Darren Crayn. Seconded: Peter Weston. Motion carried.

5. Business arising from the minutes.

None.

6. Correspondence.

None.

7. Business arising from the correspondence.

None.

8. Reports.

President's Report

Bill Barker spoke to his report which is provided as Attachment 1 in these published minutes.

It was proposed that the President's report be accepted. Moved David Cantrill.

Seconded Murray Henwood. Motion Carried.

Australasian Systematic Botany Society Inc. **2016 Membership Fees are now due**

These are due on January 1st each year.

A few members also owe back fees.

Subscription rates:

Ordinary/Institutional members \$45 (AUS)

Full-time students / retired / unemployed \$25 (AUS)

This is also an opportunity to donate to the Research Fund.

**Prospective Members need to download a membership form
from the membership section of the ASBS web site.**

Please direct enquiries to John Clarkson, our Treasurer.

Treasurer's Report

The Treasurer tabled and presented his report (see Attachment 2) and discussed the financial report for the 2014-2015 financial year

It was proposed that the Treasurer's report be accepted. Moved Peter Jobson.

Seconded Peter Weston. Motion Carried.

Newsletter Report

Robyn Barker presented the Newsletter report provided as Attachment 3.

Website Report

Murray Fagg tabled a report on the ASBS website (Attachment 4) that was read by the Secretary.

The President thanked Murray and Anna on behalf of the Society.

Facebook Report

Mike Bayly tabled a report co-authored by Todd McLay on the ASBS Facebook Group that appears as Attachment 5.

Research Committee Report

The Vice-President (ex officio Chair of the Research Committee) reported on the Eichler and Australian Conservation Taxonomy (ACT) Awards granted since the last AGM through deliberations of the Hansjörg Eichler Research Committee. His report is given in Attachment 6.

The Vice-President thanked the Research Committee for their judging efforts, particularly Christopher Quinn and Phil Garnock-Jones who have stepped down since the AGM, and called for volunteers to join the committee.

In response to a comment from Jen Tate the Vice-President confirmed that the ACT Award was not open to students based in New Zealand (or elsewhere outside Australia).

Grants Policy Standing Committee

The Vice-President, who chairs the Grants

Policy Standing Committee, reported on the committee's activities in its first year. His report is provided in Attachment 7.

9. General Business

Members were invited to make comments and ask questions.

Isobel Crawford requested that the Society consider divesting from fossil fuel industries. She noted that such divestment made financial and moral sense. The Treasurer indicated that this would be considered by the Financial Advisory Standing Committee.

10. Presentation of cheques to students

The Secretary announced that the students who had applied for financial support for attending the conference could collect their cheques from him once they had given their talk or poster.

11. Election of Officers

The Secretary informed the meeting that each Council position had only a single nomination. The nominees were therefore elected unopposed. The Council for 2015-2016 is:

President: Darren Crayn. (Nominated: Chris Quinn, seconded: Frank Zich)

Vice-president: Dan Murphy. (Nominated: Frank Udovicic, seconded: Pina Milne)

Treasurer: John Clarkson. (Nominated: Frank Zich, seconded: Darren Crayn)

Secretary: Leon Perrie. (Nominated: Patrick Brownsey, seconded: Jessie Prebble)

Councillor: Jen Tate. (Nominated: Bill Barker, seconded: Phil Garnock-Jones)

Councillor: Mike Bayly. (Nominated: Tanja Schuster, seconded: Rachael Fowler)

12. Next meeting

The meeting was informed that the next Annual General Meeting would, depending on dates, be held in conjunction with the 2016 conference in Alice Springs, being planned for the third quarter of the calendar year. The date, along with time and venue, will be confirmed in due course.

The meeting closed at 6.10 pm.

Australasian Systematic Botany Society Inc.

Hansjörg Eichler Research Grants

Applications close on March 14th 2016

We invite applications from members.

Note that the approach by the Society has changed (see p. 22-23 in this Newsletter).

**For eligibility and other information see the ASBS website
or contact Vice-President Dan Murphy (address inside front cover)**

Attachment 1: President's report

The state of plant systematics in our region

This is the subject I most often seem to begin with: it seems that my life in plant systematics has involved a continuing concern for the well-being of this most basic of sciences. These concerns seem always to have had their local and broader perspectives and involved both “vision” – where should we be heading, and “sustainability” – how can we get to what we aspire to. Our vision is pretty consistent: the discovery, refinement and documentation of our knowledge of plant biodiversity. As for sustainability, each institution in which I have worked has experienced highs and lows, at times well resourced and productive, at others struggling to achieve through having too little to do the essential much.

There has never been a shortage of enthusiasm in plant systematics. Our annual ASBS conferences today are prime evidence of this, abundant in good and innovative science and the continuing flow of young recruits. Our issues of sustainability derive from the lack of value that government, the general community, and sometimes our fellow scientists, place on our brand.

We must be optimistic in our continued struggle to meet aspirational goals of our science. To be otherwise is to set ourselves up for failure. The pendulum of support for systematics and science in general must inevitably swing back from its current dark phase which is born out of a political unwillingness to acknowledge the place of science, in particular pure science, in servicing our human and environmental future.

I must acknowledge the scientists who have raised their voice in the face of misplaced scepticism and ill-founded criticism. One who has inspired me has been Ian Chubb the retiring Chief Scientist of Australia. He has persistently promoted a strategic investment in science, technology, mathematics and engineering, areas in which we rank low amongst OECD countries.

We must be ready for the resurgence of support for science as the pendulum swings back to inevitable enlightenment. There may be a time when this Society publicly advocates for plant systematics. To do that it is essential to have an agreed message to promote. We need to

help ourselves; we need to be prepared. And so a major focus of my term as President has been to be part of a team developing a case for plant systematics being integral to a successful future for our region. Prompted at the Perth ASBS conference in 2012 by expressions of concern in speeches by David Mabberley, Peter Weston and Kevin Thiele, a discussion between these people with New Zealand's Ilse Breitwieser, and me as the new President, and an endorsement by the Society at our AGM of an attempt to find a way to promoting our science, the development of our course towards laying out a vision for our science has been a gradual one that at last seems to be coming to fruition. In a coming session at this conference we will hear of the latest progress in developing a decadal plan for our science, our course towards setting out a vision for our science following a model developed by other fields of science¹. The New Zealanders have had the opportunity to pre-empt our plan that was intended to cover both countries²; we are learning from their experience and preparing to extend our scope to cover the systematics of all organisms.

How is our Society faring?

In respect of general enthusiasm and a good age structure, I think we are doing very well. In terms of membership we continue to maintain our numbers at around a healthy 300. There will be more on this in the Treasurer's report.

What of the vehicles that maintain our members' interest? Our Newsletter and our Facebook pages are working well. You will hear more shortly in the relevant reports.

Our conferences are well supported each year. Council ensures that the spread of venues covers our Australasian region equably. We see advantages in the balance between meeting amongst ourselves, as here and last year at Palmerston North, and inviting participation with other Societies every few years, often for example with the Society of Australian Systematic Biologists. Our alliance with New Zealand is progressing. While our meeting there last year had good participation, we've not too many participants at this meeting, no

¹ See Decadal Plan report on p. 43.

² See note on p. 57

doubt through the expense of travel. Council is treating New Zealand as equivalent to an Australian state in size and so we expect to hold conferences there every few years.

But since 1997 a further driver to join and participate in the Society, particularly for postgraduate student members, has been the highly successful research grants scheme, which is about to be extended.

Grant schemes and finances: making well-advised decisions

This term of Council has seen the establishment of two standing committees under the Rules of the Society charged with advising Council on two important policy areas. The substantial Marlies Eichler bequest, which potentially more or less doubled the funds available for grants, prompted a review of our policy for providing grants to members. Council decided to establish a small group of members to look at who might appropriately benefit from a revised scheme and the level of funding that might be provided, predicated on using interest generated from a principle which maintained its effective value. The review has taken into account views expressed by members at previous AGMs. The Chair of this advisory committee will present the proposal, adopted by Council, to you. This committee is a standing committee and is retained to revisit our policy on grants with experience of the new approach.

The imminence of releasing Marlies Eichler's bequest that has brought our financial assets to over one million dollars has prompted a review of our investment strategies. Council and the Treasurer felt it prudent to establish a second Advisory Standing Committee of members experienced in budgeting and finances to assist in this review. The committee will provide support for our Treasurers into the future. John Clarkson will talk further on this in his Treasurer's report.

It is intended that these advisory standing committees will not only draw on experience of our membership, but also provide rigour and consistency to policies and their implementation that is placed at risk from time to time with lack of continuity of knowledge in these areas through changes in Council membership.

Extending our award system

Lastly, I come to the need to celebrate our

achievers. In recent times our herbaria have seen the need to increase their profile in the media and on blog sites with good news stories. The contributions of systematics to science, the environment and our culture is so often taken for granted. But we also need to celebrate our achievements and achievers ourselves. As Kevin Thiele suggests: we can do with a bit of mutual back-slapping; it is good for morale. Sports and the arts highlight their high achievers with halls of fame and special museums.

We do celebrate the most outstanding living contributors to plant systematics in our region with the Burbidge Medal and will be remembering Hansjörg and Marlies Eichler posthumously for their achievements in the Burbidge Memorial Amphitheatre later in the week¹. I have left a task for the next Council in the suggestion that we review our award systems with the aim of finding a way to acknowledge our consistent, long-standing contributors of quality work in our field. It would be preferable, as with our most prestigious award, the Burbidge Medal, to have an award to recognise such contributors while they are still alive. Judy West will have something to say about an associated approach to this amongst her words at the Eichler ceremony². A parallel approach could potentially be adopted in New Zealand, which has had a parallel history of contributors to taxonomic knowledge of the flora. It is sad to acknowledge our many fine achievers posthumously in our house journals or our Newsletter. How much better it would be that more of our peers experience our recognition of their work.

Thanks

It remains for me to express my gratitude to ASBS for giving me the rewarding experience as President over the past three years. I approached the role with trepidation, because I knew there were things I'd want to do in finding ways to promote our science and to set our Society on a firmer and more consistent footing. I thank the members of Council over those years for the great working relationship we had; we managed despite the perennial difficulties of the tyranny of Australasian distance. I also thank the website and facebook

¹ See p. 46 of this issue.

² See p. 48.

coordinators, my fellow newsletter editors, and the public officer. I extend Council's thanks to the inaugural members of the Grants Policy and the Financial Advisory Standing Committees for taking on these new roles and for the work

that they've undertaken. Finally, I thank Kelly Shepherd, who is leaving Council along with me and wish the yet to be announced new Council well in their future activities.

Bill Barker

Attachment 2: Treasurer's report 2014/15

1. Introduction

I am pleased to present the financial statements of the Australasian Systematic Botany Society (ASBS) for the year ended 30 June 2015. The finances of the Society are run on a financial year basis. For many years the annual financial statement has been based on a modified accrual based system of accounting. This year, following discussion with the auditor, the accounts are reported on a full cash basis. This system is better suited to small associations such as ASBS. Financial statements for the year ended 30 June 2014 have been adjusted accordingly and are explained in Note 4 of the audited financial report.

Brian Woods of DFK Kidsons audited the accounts in November 2015 for the fifth consecutive year.

2. Membership

Table 1 records the number of members of ASBS at the end of November 2015. Since the last Annual General meeting the Society has lost 22 members. Sixteen have resigned for various reasons and, unfortunately, 6 have died. New members however have offset these losses by over 2:1. The result of this is that membership is above the long term average of 300 after falling below this between 2009 and 2014 (Fig. 1). The number of members who qualify for the concessional subscription rate has decreased slightly from 38% to 36% of the total membership in the past 12 months. Slow payment of annual fees remains a perennial problem. Members are reminded that annual subscriptions fall due in January.

Forty five people were admitted to the Society since membership figures were reported at the last Annual General Meeting (see list below). 42% of these are students.

The following new members are welcomed to the Society:

Luis Aju, Carlton, Vic.
 Mohamed Barbary, Palmerston North, NZ
 Margaret Beal, Leura, NSW
 Stephen Bell, Kotara Fair, NSW
 Shamim Bhagat, Perth, WA
 Patrick Brownsey, Wellington, NZ
 Chi-Chuan Chen, Vantaa, Finland
 Catherine Clowes, Newport, Vic.
 James Clugston, Double Bay, NSW
 Timothy Collins, Armidale, NSW
 Wendy Cooper, Malanda, Qld
 Sarah Dalglish, East Victoria Park, WA
 Christine Filiamundi, Brunswick, Vic.
 Rachael Fowler, St Kilda, Vic.
 John Gardiner, Beechworth, Vic.
 Cecile Gueidan, Canberra, ACT
 Daniel Healy, Bardonia, Qld
 Alison Hewitt, Falconbridge, NSW
 Ellen Hickman, Albany, WA
 Stephen Hopper, Albany, WA
 Nick Kalfas, Seacliff, SA
 Zoë Knapp, Acton, ACT
 Jessie Knott, Flemington, Vic.
 Christina Latorre, Ashgrove, Qld
 Peter Lockhart, Palmerston North, NZ
 Terry Macfarlane, Bently Delivery Centre, WA
 Sarah Mathews, Canberra, ACT
 Michael Mathieson, Toowong, Qld
 Doug Meredith, Umina Beach, NSW
 Heather Merrylees, Princess Hill, Vic.
 Heidi Meudt, Wellington, NZ
 Phil Novis, Lincoln, NZ

Table 1. Membership of ASBS as of 30th November 2015
 (non-financial members in brackets)

| Fee | Full | Concessional | Gratis | Total |
|---------------|----------------|-----------------|-----------|-----------------|
| Ordinary | 190 (8) | n/a | 0 | 190 (8) |
| Student | n/a | 59 (13) | 0 | 59 (13) |
| Retiree | n/a | 55 (3) | 0 | 55 (3) |
| Unemployed | n/a | 6 (1) | 0 | 6 (1) |
| Institutional | 6(1) | n/a | 14 | 20 (1) |
| Life | n/a | n/a | 3 | 3 |
| Total | 196 (9) | 120 (17) | 17 | 333 (26) |

Nicholas O'Brien, Box Hill South, Vic.
Sofie Pearson, Palmerston North, NZ
Ryan Phillips, Duncraig, WA
Beau Picking, Brunswick, Vic.
Maren Preuss, Wellington, NZ
Brian Quinn, Auckland, NZ
Dinali Ranmadugala, Hamilton, NZ
Tanja Schuster, South Yarra, Vic.
Myall Tarran, North Adelaide, SA
Alison Vaughan, South Yarra, Vic.
Xenia Weber, Campbell, ACT
Alyssa Weinstein, Lyneham, ACT
Brendan Wilde, Revesby, NSW

3. Management of Funds

The Society's funds are managed in two clearly defined sets of accounts – the General Fund and the Research Fund. This is important because the Society is registered with the Australian Taxation Office (ATO) as a Deductible Gift Recipient. Donations to the Research Fund are tax deductible in Australia. The ATO imposes various restrictions on how funds that attract tax deductions can be used. By managing two sets of accounts, funds subject to these restrictions can be clearly identified.

In 2014 the Society received a very substantial bequest from the estate of the late Marlies Eichler, a Life Member of the Society. One of the conditions imposed on this gift was that the funds be directed to the purposes of the Hansjörg Eichler Research Fund. However, pending advice from recently established standing committees on grants and finances, Council determined that the funds be held separately in a clearly identified part of the General Fund. In due course these will pass to the Research Fund.

4. General Fund

Assets in the General Fund are held as cash at call or in short term deposits. A small amount required for day to day needs is held in a cheque account with the Commonwealth Bank and the balance in a high interest earning account with RaboDirect. The Marlies Eichler bequest is invested in a term deposit with the Commonwealth Bank. This will mature in June 2016 by which time Council hopes to have a revised investment strategy in place and these funds will be transferred to the Research Fund.

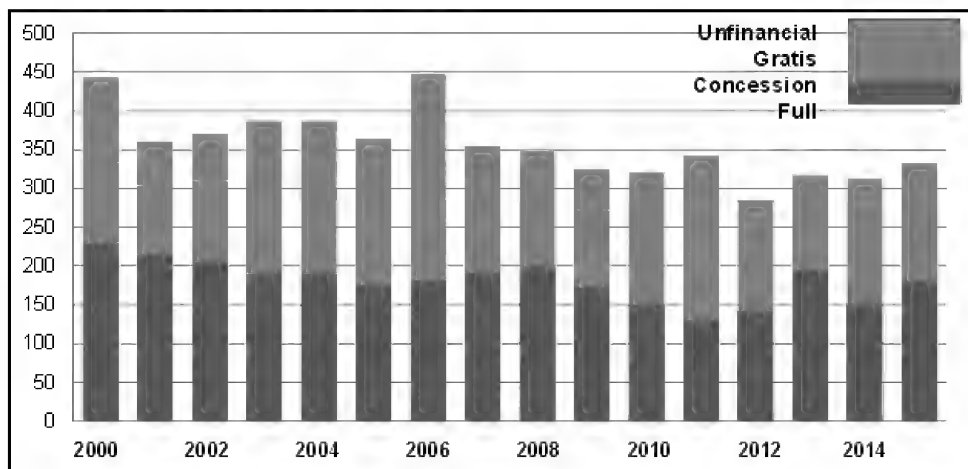
4.1 General Fund Income

Income to the General Fund comes from two primary sources – subscriptions and interest earned. From time to time, annual conferences organised on behalf of the Society by local chapters can return a substantial profit, as was the case in 2014. However, from time to time, conferences have run at a net loss. This is most likely to occur when conferences are held away from capital cities. However, when profits and losses are averaged over a number of years, the cost of holding an annual conference has been shown to be cost neutral or to return a small profit.

4.2 General Fund Expenditure

There was no unusual expenditure for the financial year. The Australian Conservation Taxonomy (ACT) Award is cost neutral because grants are matched by funds received from the Nature Conservancy. The remuneration paid to the auditor in 2014 was higher than normal because of some extra work that was required on his part. This has returned to normal for

Fig. 1. Membership trends in the past 16 years.



2015. Bank fees have decreased largely due to members taking up the offer to pay subscriptions by direct debit rather than using credit cards thus saving the costs imposed by the bank on credit card transactions. Members are encouraged to pay by direct debit whenever possible. The system is working well. No one has failed to identify themselves when transferring funds electronically and payment by this method reduces the work load for the Treasurer. Approximately two thirds of conference expenses relate to the 2014 conference in Palmerston North. This includes financial support provided to Nancy Burbidge medallist and to students who gave talks or posters and a small budget shortfall. The other one third was a cash advance to the organising committee for the 2015 conference held in Canberra.

Newsletter costs include printing 3 issues (158-161) and postage for 4 issues (158-161). The number of members opting to receive the Newsletter as hard copy is gradually decreasing. In 2010 the Society was posting Newsletters to 220 members. This has fallen to just 96 in 2015. This number will probably continue to gradually fall. All but 2 members now communicate with the Society electronically. As the print run declines, the unit cost of producing the printed version will increase. However, Council has no intention to cease production of the printed version.

As tax deductible donations are made to the Research Fund they are banked in the General Fund and once each year the total amount received is transferred to the Research Fund.

4.3 Current Assets in the General Fund

The financial statement shows a \$30,279 surplus in the General Fund at the end of the financial year. If the \$31,256 received as part of the Marlies Eichler bequest that will in time be transferred to the Research Fund is discounted, the true operating result is a \$977 loss. This is only the eighth deficit in the past 37 years. However the funds for the ACT Award were not received from the Nature Conservancy until after June 30 by which time close to \$9,000 had been outlaid. Had these funds been received before the end of the financial year, the surplus for the year would have been higher than that recorded for the 2013-14 financial year.

At the end of June 2015 the Society held assets of \$660,238 in the General Fund – \$535,133 in bequests and \$125,105 as cash at call. The bequest term deposit will mature in October 2015 giving Council ample time to determine how best to use these funds and develop an investment strategy to match.

5. The Hansjörg Eichler Research Fund

Assets held in the Research Fund are a little more complex than those in the General Fund. A small amount of cash is retained in a cheque account for short-term expenses, \$220,000 in a term deposit and the balance in a series of managed funds. Two of the managed funds have now been in place for 17 years. \$28,000 was invested in the Bond Fund in April 1997 with \$10,175 of additional units purchased in October that same year. The initial investment in the Growth Fund was \$17,000 in April 1997 with \$21,000 of addition units purchased in March 1999. \$55,000 was invested in Colonial First State in August 2003. From the initial investment, all proceeds have been reinvested as additional units. The growth in total value of the managed funds is shown in the chart (Fig. 2). The investments in the Growth Fund and Colonial First State have been roughly paralleling each other. The impact of the global financial crisis (GFC) on the Growth Fund and the Colonial First State can be clearly seen. However the losses sustained in 2007 and 2008 have been fully recovered. With no exposure to the share market, the Bond Fund was unaffected by the GFC. Between 1997 and 2014, annual inflation averaged 2.8%. Growth in the funds has been well in excess of this and the investments have grown substantially.

Research Fund investments had another year of reasonable growth despite falling interest rates. Investment income for the financial year totalled \$21,720 which together with \$3,025 in donations produced a total income of \$24,745. Coupled to an expenditure of \$7,350 on student grants this resulted in a surplus for the year of \$17,395.

Fifty eight members made donations to the Hansjörg Eichler Research Fund totalling \$3,025. All donors, including the following members who agreed to having their names recorded publicly, are acknowledged for their generous support:

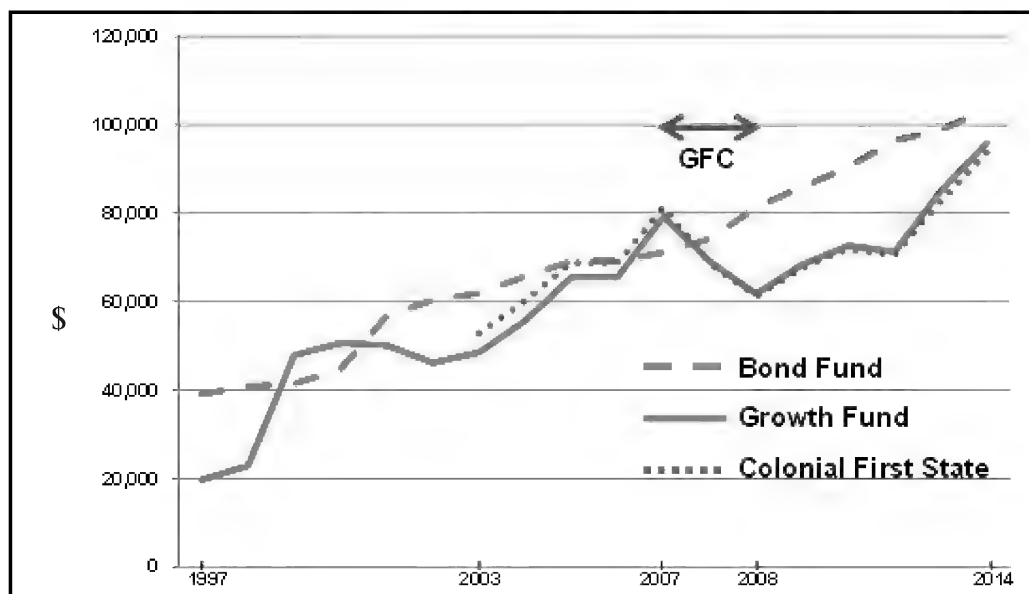


Fig. 2. Growth in total value of investments in the managed funds.

Mike Bayly
Margaret Beal
Graham Bell
Chris Betteridge
Pam Catcheside
Carrick Chambers
John Clarkson
Trevor Clifford
Margaret Corrick
Darren Crayn
Mike Crisp
Rogier de Kok
Murray Fagg
John Gardiner
Laurie Haegi
Frank Hemmings
Clare Herscovitch
Gareth Holmes
John Hosking
Laurie Jessup
Nunzio Knerr
Pauline Ladiges

Merran Matthews
Buill McDonald
Dirk McNicoll
Doug Meredith
Kenneth Mills
Pina Milne
Andrew Mitchell
Rosemary Purdie
Tanja Schuster
Kelly Shepherd
John Thompson
Stephen van Leeuwen
Helen Vonow
Juliet Wege
Peter Weston
Molly Whalen
Annabel Wheeler
Peter Wilson
Nicholas Yee

and Bob Hill also from Adelaide. Patrick, David and Bob are members of the Society and are probably known to most members. Bruce Evans may need some introduction. Bruce is a strategic manager with the South Australian Department of Environment, Water and Natural Resources. He is a certified practicing accountant, a Fellow of the Institute of Public Accountants and Treasurer of the Council of Heads of Australasian Botanic Gardens (CHABG). The Financial Advisory Standing Committee is working closely with the Grants Policy Standing Committee chaired by Mike Baily. This group is considering the financial needs of the plant systematics community. The challenge facing the financial advisory group is to develop an investment strategy that can deliver sufficient income to fund these needs, hedge the funds against inflation and ensure a small growth in capital. It is hoped to have a strategy developed and approved by Council by the end of the 2015-16 financial year.

7. Summary

The Society remains in a very strong financial position. With expenditure from the General Fund being matched by income, no significant expenditure foreshadowed and ample cash reserves in hand, it should not be necessary to increase the subscription fee for the 2016 membership year.

John Clarkson
Treasurer

6. Financial Advisory Standing Committee

In recognition of its obligation to carefully manage the substantial funds under its control to progress the Society's objective of promoting the study of plant systematics, Council has established a small standing committee to assist the Treasurer review the current investment strategy. This has been prompted by the substantial growth in assets in recent years. The members of the group are Patrick Brownsey from Wellington, David Cantrill from Melbourne, Bruce Evans from Adelaide

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
FINANCIAL REPORT
FOR THE YEAR ENDED
30 JUNE 2015

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

COUNCIL MEMBERS' REPORT

Your Council members submit the financial statement of the Australasian Systematic Botany Society Incorporated for the year ended 30 June 2015.

Council Members

The names of the Council members who held office throughout the reporting period and at the date of this report are:

| | | |
|----------------|-----------------------|--------------------------|
| President | William (Bill) Barker | Elected September 2012 |
| Vice President | Michael Bayly | Elected September 2012 |
| Secretary | Leon Perrie | Elected November 2014 |
| Secretary | Frank Zich | Stood down November 2014 |
| Treasurer | John Clarkson | Elected December 2013 |
| Councillor | Ilse Breitwieser | Stood down November 2014 |
| Councillor | Kelly Shepherd | Elected November 2014 |
| Councillor | Daniel Murphy | Elected November 2014 |

Principal Activities

The principal activities of the association during the reporting period were to promote systematic botany in Australasia.

Significant Changes

No significant change in the nature of these activities occurred during the reporting period.

Operating Results

The operating results are as set out hereunder:

| | Year ended June 2015 | Year ended June 2014 |
|---------------|---------------------------------------|---------------------------------------|
| | \$ | \$ |
| Research Fund | 17,395 | 35,041 |
| General Fund | 30,279 | 512,956 |
| Total | 47,674 | 547,997 |

Signed in accordance with a resolution of the members of the Council.

William Barker (President)

John Clarkson (Treasurer)

30th November 2015

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
INCOME STATEMENT
FOR THE YEAR ENDED 30 JUNE 2015

| | Note | 2015 \$ | 2014 \$ |
|--|------|---------------|----------------|
| RESEARCH FUND | | | |
| <i>Income</i> | | | |
| Donations to Research Fund | | 3,025 | - |
| Investment Income | | 21,720 | 39,027 |
| Total Income | 2 | 24,745 | 39,027 |
| <i>Expenditure</i> | | | |
| Research Grants | | 7,350 | 3,949 |
| Registrar General returns | | | 37 |
| Total Expenditure | | 7,350 | 3,986 |
| Surplus | 3 | 17,395 | 35,041 |
| GENERAL FUND | | | |
| <i>Income</i> | | | |
| Advertising in Newsletter | | - | |
| Conference | | - | 9,985 |
| Australian Conservation Taxonomy Award | | - | - |
| Investment Income | 2 | 10,919 | 11,414 |
| Subscriptions to ASBS Inc. | | 10,125 | 9,925 |
| Donations to Eichler Fund | | 3,035 | 2,695 |
| Bequests | | 31,256 | 490,214 |
| Sale of miscellaneous items | | - | 17 |
| Sundry income | | 10 | |
| Total Income | | 55,354 | 524,250 |
| <i>Expenditure</i> | | | |
| Australian Conservation Taxonomy Award | | 8,979 | |
| Auditor's remuneration | | 1,980 | 3,630 |
| Bank fees, Credit card charge facility | | 338 | 502 |
| Conference expenses including Student Grants | 4 | 7,965 | 1,030 |
| Newsletter expenses (printing, postage) | | 2,039 | 2,621 |
| Registrar General returns | | 38 | - |
| ASBS Council Travel (AGM, Special GM) | | 711 | 3,042 |
| Miscellaneous expenses (e.g. postage) | | - | 470 |
| Transfer donations to Research Fund | | 3,025 | |
| Total Expenditure | | 25,075 | 11,924 |
| Surplus | 3, 4 | 30,279 | 512,956 |

The accompanying notes form part of these financial statements.

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

**BALANCE SHEET
AS AT 30 JUNE 2015**

| | Note | 2015 \$ | 2014 \$ |
|---|------|------------------|------------------|
| ASSETS | | | |
| Current Assets | | | |
| RESEARCH FUND | | | |
| Cash at Bank | | 11,983 | 11,157 |
| Investments | | | |
| Colonial Managed Investment | | 101,285 | 93,795 |
| Commonwealth Term Deposit | | 220,000 | 223,502 |
| Australian Bond & Growth Funds | | 212,186 | 199,606 |
| Total Current Assets Research Fund | | 545,454 | 528,060 |
| GENERAL FUND | | | |
| Cheque Account | | 10,864 | 22,551 |
| Savings Account | | 114,241 | 111,104 |
| Term Deposit (Bequests) | | 535,133 | 496,304 |
| Total Current Assets General Fund | | 660,238 | 629,958 |
| Total Current Assets | | 1,205,692 | 1,158,018 |
| NET ASSETS | | 1,205,692 | 1,158,018 |
| MEMBERS' FUNDS | | | |
| Accumulated surplus – opening | | 1,158,018 | 610,020 |
| Surplus for the period | | 47,674 | 547,997 |
| Total Members' Funds | | 1,205,692 | 1,158,018 |

The accompanying notes form part of these financial statements.

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
**NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2015**

Note 1: Statement of Significant Accounting Policies

The financial report is a special purpose financial report prepared in order to satisfy the financial reporting requirements of the members. The Council has determined that the Society is not a reporting entity.

The financial report has been prepared in accordance with the requirements of Australian Accounting Standard AASB 1031: Materiality. No other applicable Accounting Standards, Australian Accounting Interpretations or other authoritative pronouncements of the Australian Accounting Standards Board have been applied.

The financial report has been prepared on a cash basis.

The following specific accounting policies, which are consistent with the previous period unless otherwise stated, have been adopted in the preparation of this financial report.

(a) Membership

Membership is recorded on a cash basis.

(b) Income Tax

Under present legislation the Society is exempt from income tax and accordingly no provision has been made in the accounts.

(c) Comparative Figures

Where required by Accounting Standards comparative figures have been adjusted to conform with the changes in presentation for the current year.

(d) Members Funds

In accordance with the rules of the Society accumulated funds are not available for distribution to its members.

| | 2015 \$ | 2014 \$ |
|---|---------------|---------------|
| Note 2: Investment Income | | |
| RESEARCH FUND | | |
| Interest Received | | |
| Cheque Account | 4 | 4 |
| Distributions | | |
| Term Deposit | 1,645 | 5,498 |
| Colonial First State (Diversified Fund) | 7,490 | 11,001 |
| Australian Bond and Growth Fund | 12,581 | 22,525 |
| Total Investment Income | 21,720 | 39,027 |
| GENERAL FUND | | |
| Interest Received | | |
| Cheque Account | 7 | 6 |
| Savings Account | 3,137 | 3,299 |
| Term Deposit (Bequests) | 7,775 | 8,110 |
| Total Investment Income | 10,919 | 11,414 |

Note 3: Accumulated Funds

| | | |
|--------------------------------------|------------------|------------------|
| RESEARCH FUND | | |
| Accumulated Surplus – Opening | 528,060 | 493,019 |
| Surplus for the period | 17,395 | 35,041 |
| Accumulated Surplus – Closing | 545,454 | 528,060 |
| GENERAL FUND | | |
| Accumulated Surplus – Opening | 629,958 | 117,002 |
| Surplus for the period | 30,279 | 512,956 |
| Accumulated Surplus – Closing | 660,238 | 629,958 |
| Total Surplus for the period | 47,674 | 547,997 |
| Total Accumulated Surplus | 1,205,692 | 1,158,018 |

Note 4: Restatement of comparatives

Adoption of full cash based financial statements

Preparation of financial statements on a full cash basis. Financial statements for the year ended 30 June 2014 were based on a modified cash basis. Extracts (being only those line items affected) are disclosed below.

| Extract | 2014 Reported | Adjustment | 2014 Restated |
|--|------------------|--------------|------------------|
| | \$ | \$ | \$ |
| Assets | | | |
| General Fund Cheque account | 21,481 | 1,070 | 22,551 |
| Total current assets General Fund | 628,888 | 1,070 | 629,958 |
| Surplus for the period | 546,927 | 1,070 | 547,997 |
| Accumulated surplus - closing | 1,156,947 | 1,070 | 1,158,018 |

| Extract | 2014 Reported | Adjustment | 2014 Restated |
|---|------------------|---------------|------------------|
| | \$ | \$ | \$ |
| General Fund | | | |
| Expenditure | | | |
| Conference expenses including Student Grants | 2,100 | -1,070 | 1,030 |
| Total Expenditure | 12,364 | -1,070 | 11,294 |
| Surplus | 511,886 | 1,070 | 512,956 |

Research Committee

The Australasian Systematic Botany Society is an approved research institute.

The approved membership of the Research Committee comprises:

| | |
|----------------------|-----------------------|
| Mike Bayly (Chair) | |
| Greg Leach | Appointed August 2009 |
| Philip Garnock-Jones | Appointed July 2011 |
| David Glenny | Appointed March 2013 |
| Sarah Matthews | Appointed March 2015 |
| Nathalie Nagalingum | Retired October 2014 |
| Chris Quinn | Retired June 2015 |

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED STATEMENT BY THE MEMBERS OF THE COUNCIL

The Council has determined that the Society is not a reporting entity and that this special purpose financial report should be prepared in accordance with the accounting policies outlined in Note 1 to the financial statements.

In the opinion of the Council:

1. The financial report as set out on pages 1 to 7 presents a true and fair view of the Society's financial position as at 30 June 2015 and its performance for the year ended on that date.
2. At the date of this statement, there are reasonable grounds to believe that the Society will be able to pay its debts as and when they fall due.

This statement is made in accordance with the resolution of the Council and is signed for and on behalf of the Council by:

President

William Barker – President

Treasurer

John Clarkson – Treasurer

Dated this 29th day of NOVEMBER 2015



DIRECTOR
Brian Woods, FCPA

Independent auditor's report to the members of the Australasian Systematic Botany Society Inc.

Report on the financial report

We have audited the accompanying financial report, being a special purpose financial report, of the Australasian Systematic Botany Society Inc., which comprises the balance sheet as at 30 June 2015, council members' report, the income statement, notes to the financial statements, a summary of significant accounting policies, other explanatory notes and the statement by the members of the council, for the period ended 30 June 2015.

The responsibility of the members of the council for the financial report

The council members of the Society are responsible for the preparation and fair presentation of the financial report and have determined that the accounting policies described in Note 1 to the financial statements which form part of the financial report, are appropriate to meet the financial reporting requirements of the Incorporated Society and the needs of the members. The council members' responsibility also includes establishing and maintaining internal control relevant to the preparation and fair representation of the financial report that is free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's responsibility

Our responsibility is to express an opinion on the financial report based on our audit. No opinion is expressed as to whether the accounting policies used, as described in Note 1, are appropriate to meet the needs of the members. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Society's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Society's internal control. An audit also includes evaluating the reasonableness of accounting estimates made by the council members, as well as evaluating the overall presentation of the financial report.

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www.dfkkidsons.com.au



The financial report has been prepared for distribution to members for the purpose of fulfilling the council members' financial reporting responsibilities under the incorporated Society's constitution. We disclaim any assumption of responsibility for any reliance on this audit report or on the financial report to which it relates to any person other than the members, or for any purpose other than that for which they were prepared. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independence

In conducting our audit, we have complied with the independence requirements of the Australian professional accounting bodies.

Matters relating to the electronic presentation of the audited financial report

The auditor's report relates to the financial report of the Australasian Systematic Botany Society Inc. for the year ended 30 June 2015, included on the Australasian Systematic Botany Society website. The Society's council members are responsible for the integrity of the Australasian Systematic Botany Society website. We have not been engaged to report on the integrity of the Australasian Systematic Botany Society website. The auditor's report refers only to the statements named above. It does not provide an opinion on any other information which may have been hyperlinked to / from these statements. If users of this report are concerned with the inherent risks arising from electronic data communications they are advised to refer to the hard copy of the audited financial report to confirm the information included in the audited financial report presented on this website.

Qualification

Receipts from donations and membership subscriptions are a significant source of revenue for the Australasian Systematic Botany Society Inc. The Australasian Systematic Botany Society Inc. has established controls in respect of the collection of donations and other fundraising activity revenue prior to entry in its financial records. However, it is impractical to establish complete control over the collection of cash donations and other fundraising activity cash revenue. Accordingly, our audit procedures for donations and other fundraising activity revenue had to be restricted to the amounts recorded in the financial records. Therefore we are unable to express an opinion on whether donations and other fundraising activity revenue obtained by the Australasian Systematic Botany Society Inc. are complete.

Qualified Auditor's opinion

In our opinion (except for the effects on the financial report of such adjustments, if any, as might have been required had the limitation of our audit procedures referred to in the qualification paragraph not existed), the financial report presents fairly in accordance with the accounting policies described in Note

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LIMITED LIABILITY, AS APPLICABLE, UNDER PROFESSIONAL STANDARDS LEGISLATION

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PO Box 548 North Cairns QLD 4870
TELEPHONE 07 4031 1390
FACSIMILE 07 4031 1400



1 to the financial statement, the financial position of the Australasian Systematic Botany Society Inc. as of 30 June 2015, and the results of its operations (and its cash flows) for the year then ended.

DFK Kidsons

DFK Kidsons
Certified Practising Accountants

B Woods

Brian Woods FCPA
Director

24 November 2015
Cairns

Liability limited by a scheme approved under Professional Standards Legislation

Attachment 3: Newsletter report

Content

We thank everyone who has contributed to the Newsletter in the past year. Content is rarely a problem but even so it would be good if we were to hear much more from our chapters. Juliet Wege with her compilation of news from Western Australia has been the only regular contributor in this area in the last year and it would be good to see other chapters emulating (or even exceeding) her contribution.

We definitely need more from New Zealand – not only from CHR and their Plant Press. Without the news and contributions from New Zealanders the term Australasian in the name of our society doesn't ring true.

And let's hear more about retirements – let's celebrate a botanist's working life rather than reading an obituary to find out just how much they have done – that is, if there is an obituary! We commend Maggie Nightingale for her obituary of Laurie Adams in the last issue. These take a lot of work and are often published in the house journals rather than the newsletter but even in this situation we would like to be able to hyperlink to them.

Facebook is a source of more immediate news, not all of it suitable for the Newsletter, but there are items which are of longer term interest and so we would encourage users to submit something to the Newsletter as well if it is of general interest. Remember that we do have readers who are not necessarily conversant with the modern ways of instant communication.

We get little feedback. Should we have a survey about what could and should be included in the Newsletter?

Lateness

Somehow we seem to keep slipping back to producing the Newsletter around 6 weeks

later than we should. In one case this year it was so late that two editions were rolled into one. This is not at all acceptable, but the editors too have other responsibilities and sometimes the Newsletter has just had to take a back seat. With Bill's term as President of ASBS now finished, some more of his time will be freed up, but there continue to be heavy systematic commitments that will also sometimes take priority.

Costs

Hard copy: we are still printing 100 plus copies at c. \$4:50 per copy. The increase in postage means that each copy in Australia will be costing around \$6:00. The cost is covered by the concessional membership fee, which is how in the past Council used to calculate fees when all was hard copy. Overseas postage is of course much higher but most of these members choose to take the newsletter electronically.

Why not colour for the hard copy? Hard copy is still printed in black and white and this is unlikely to change since if we were to go to full colour, as on the web, then the printing costs would rise to \$11 per copy.

Editors

John Clarkson has indicated that he would like to hand over his role as Book Editor since he has taken on the Treasurer's role again. Anyone interested in taking on this role should contact him. Bill and Robyn would be interested also in hearing from anyone who might be interested in a role in producing and editing the newsletter.

Many thanks to Anna Monro and Murray Fagg for their efforts in getting the Newsletter onto the web site.

Robyn and Bill Barker

Attachment 4: Web site report

The Society's webpage continues to be hosted on the Australian National Botanic Gardens server and is maintained by Murray Fagg since his retirement, with assistance from Anna Monro. The Society has had its own domain name, www.asbs.org.au, since October 2014.

The establishment of the ASBS domain name caused a glitch in the ANBG's automatic

recording of hits on the Society's website, meaning that most of the 2014/15 stats cannot be isolated from those of the Gardens. This only came to light during the preparation of this report. These statistics should be recovered in time for reporting at next year's AGM.

Meanwhile, it was possible to compare the downloads of the Newsletter pdfs. The most

recently published Newsletter received 965 hits in October 2014, while the most recently published Newsletter received 977 hits in October 2015. This indicates that downloads

have remained relatively stable despite the domain shift.

Murray Fagg

Attachment 5: Facebook group report

In its third year of life the ASBS Facebook group more than doubled in membership, having 484 members at the time of the AGM. This includes a large proportion of group members that are not financial members of ASBS

There are regular posts to the group every 1-2 days on average; a total of 218 posts in the last year. Posts cover a variety of topics, as summarised in the following table for the past year.

A relatively small, but growing, percentage of group members actively post content to the group (notably Phil Garnock-Jones, Leon Perrie,

Chrissen Gemmill, Mike Bayly, Jim Croft, Todd McLay, Jen Tate, Heidi Meudt, David Cantrill, Jeremy Bruhl, Alex Chapman, Peter Wilson, Nathalie Nagalingum, Karen Wilson, and Ailsa Holland), but there is a good level of engagement in terms of members “liking” or responding to posts with comments.

The group is currently “public”, which means anyone can see the group, members and posts, but only people in the group can post to the page. Requests to join are vetted by us as administrators.

Todd McLay and Mike Bayly

| Type of post | No. of posts |
|---|--------------|
| News article relating to plants/environment/science general | 56 |
| Science story relating to systematics/plant evolution | 39 |
| Scientific paper/journal | 26 |
| Conference/job/funding | 26 |
| People of ASBS | 22 |
| Herbarium news | 21 |
| Photos of plants | 16 |
| ASBS news | 12 |

Attachment 6: Research grants report

Eichler research grants

There were two rounds of Eichler research grants since the last Annual General meeting, closing in March and September 2015. Five applications were received in each round. Three grants were awarded in the March round, to a value of \$5,500. Awards were made to:

- Tim Collins, University of New England, \$1500
- James Clugston, RBG Sydney and University of Edinburgh, \$2000
- Catherine Clowes, The University of Melbourne, \$2000.

At the time of the AGM, results of the September round had not yet been finalised [see elsewhere in this issue of the Newsletter for announcement of these results].

Australian Conservation Taxonomy Award.

The Australian Conservation Award aims to support student research in systematics that contributes to biological conservation. It is supported by The Nature Conservancy and the Thomas Foundation. We are currently two years into a three year agreement with The Nature Conservancy to support these awards. We will be looking to seek a new agreement with The Nature Conservancy when the current one expires.

The May 2015 round sought applications for separate awards in both plant and animal systematics.

In the animal category we received six applications, and these were assessed by representatives of the Society of Australian

Systematic Biologists and James Fitzsimons from The Nature Conservancy. One award of \$5000 was offered to Kirilee Chaplin, The University of Melbourne and Museum Victoria, for “Taxonomy, ecology and conservation genetics of grassland earless dragons (Agamidae: *Tympanocryptis* spp.) in north-eastern Australia”

In the plant category we received seven applications, by far the largest number received in any grant ACTA round to date. These applications were assessed by the ASBS Research Committee in conjunction with James Fitzsimons from The Nature Conservancy. Because no botany award had been offered in the previous round we were able to support the two top ranked applications (Fig. 1). These were:

- James Clugston, RBG Sydney (enrolled at the University of Edinburgh), “Exploring new approaches for conservation genetics of *Cycas calcicola* Maconochie (Cycadaceae) in Australia”
- Rachael Fowler, The University of Melbourne and RBG Victoria, “The genus *Eremophila* in Australia’s arid zone: phylogeny and biogeography in South Australia”

These two recipients both presented talks on their project as part of the Canberra conference and will be expected to do the same at the 2016 conference.



Fig. 1. ACT Award in Botany recipients for 2015: Rachael Fowler and James Clugston.
Ph. M. Bayly

Applications for the next ACT Award round will close in May 2016. We strongly encourage supervisors to promote these awards to their research students, and we will advertise the awards again in the lead up to the next closing date.

Hansjörg Eichler Research Committee

We are indebted to members of the Research Committee for their ongoing commitment to our grants program. We especially thank Phil Garnock-Jones and Chris Quinn, who both stepped down from the committee this year. We will be actively recruiting for new members of the committee.

Mike Bayly
Vice President,
ex officio Chair of Research Committee

Attachment 7: Grants Policy Standing Committee report

Background

The Grants Policy Standing Committee was established in 2015 to assess the grants policy of ASBS. This was seen as timely given the large growth of funds now available for grants through the estate of Marlies Eichler. The committee is charged with reviewing grants policy, on an ongoing basis, and providing recommendations to Council on continuance or modification of the current award system. Committee members are Darren Crayn (ATH),

Peter Wilson (NSW), Peter Weston (NSW), Alexander Schmidt-Lebuhn (CANB) and Jennifer Tate (MPN), with John Clarkson (ASBS treasurer) and Mike Bayly (ASBS Vice President/Chair).

This year the committee has discussed grants policy through teleconferences and email exchanges. The following is a summary of recommendations made to the ASBS council and proposed to members at the Canberra AGM.

Recommended changes to ASBS grant structure

1. The existing Eichler grant scheme should continue to offer up to four grants per year, in two rounds (March and September), with the maximum value of individual grants raised to \$5K. The assessment criteria for these grants should be revised to explicitly also include, and give some priority to, applications from non-salaried researchers (retirees etc.), and to improve some aspects of grant assessment. These changes could take effect from the next Eichler round, with little/no financial or other risk, regardless of what decisions were made on how to allocate other funds. This would be an outlay from the research funds of \$20K per annum.
2. A new grant scheme could be established to support post-doctoral researchers in systematic botany (including plants, algae and fungi). Individual grants would be for a maximum of two years, with a value of up to \$10K per year. One grant would be offered each year (possibly in September). Grants would be open to early career researchers (within 10 years of PhD completion) that have already secured concurrent support through another funding program, including those of the ABRs, ARC and internal institutional schemes. Assessment criteria could include merit of the applicant and contribution of the research project to systematic botany (value for money and economic need of the applicant could also be considered). The term of the ASBS grant should fall within the term of the other concurrent funding.

Provision of funds in the second year of the grant could be contingent upon completion of a satisfactory progress report at the end of the first year. This scheme would involve an outlay from the research funds of \$10K in the first year and \$20K in every year thereafter.

Rationale for recommendations (and some considerations)

The proposed changes assume a grant expenditure of up to \$40K per annum is economically sustainable using interest from the ASBS research funds (including the large Eichler bequest), and allows for continued growth, ahead of the inflation rate, of investment capital. If this is not the case, then terms of the proposed post-doctoral scheme could be a target for downward revision (e.g. adjusting grant value, number or duration).

The grants aim to support three key parts of the plant systematics community: 1) students who represent our key training opportunity; 2) post-docs for whom support is critical if they are to bridge the gap between PhD study and permanent university or herbarium positions; 3) retirees who have extensive experience and research capacity, but who might have limited opportunities for financial support.

The increase in Eichler grant funding is intended to make the grants more useful and more attractive, and thus to encourage high quality applicants and support valuable research in plant systematics. The existing \$2K grants, although useful, do not go far in terms of supporting projects that involve substantial

Table 1 Projected costs (\$) for the two proposed grant schemes.

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Eichler Grants | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Post Doc Stipend 1 | 10,000 | 10,000 | - | - | - | - |
| Post Doc Stipend 2 | - | 10,000 | 10,000 | - | - | - |
| Post Doc Stipend 3 | - | - | 10,000 | 10,000 | - | - |
| Post Doc Stipend 4 | - | - | - | 10,000 | 10,000 | - |
| Post Doc Stipend 5 | - | - | - | - | 10,000 | 10,000 |
| Post Doc Stipend 6 | - | - | - | - | - | 10,000 |
| Post Doc Stipend 7 | - | - | - | - | - | - |
| Funds Required | 30,000 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |

field work or molecular work. This is especially true for projects using next-generation DNA sequencing, which provides low cost per base of DNA sequence but for which the minimum costs of sequencing runs are much higher than conventional methods.

The size and number of Eichler grants (up to four per year) is probably reasonably matched to the existing demand among students. The rounds since March 2013 have had 5, 4, 8, 5, 5 and 5 applicants, in chronological order. A large number of initially unsuccessful applicants reapply in later rounds, taking heed of previous feedback, and are often subsequently successful. This gives students, over the course of a PhD, a reasonable chance of some funding success through this scheme, and an opportunity for refining their grant-writing skills.

Explicit extension of Eichler grants to non-salaried researchers (e.g. through clear mention in grant conditions and advertising, and through increased prioritisation in application assessment) seems worthwhile, but it is not clear what the demand will be and how this will affect overall success rate in the scheme. If demand is low, this change could achieve the desired effect of supporting retirees in plant systematics without unduly affecting support for students. If demand among the retirees is very high it could detract more substantially from the pool of funding available to students. Based on the level of demand through other schemes available to non-salaried researchers, such as that through ABRs, the number of applications each year is not high. It thus seems reasonable, for now, to proceed with the scheme as proposed, and to re-assess after several rounds to see if outcomes are in line with our intentions.

The nature of postdoc support is intended to meet a need among recent graduates in the field of plant systematics. Many existing postdoctoral schemes are not fully funded and there is commonly a gap between funds provided and those required. Sometimes this is a gap between salary funding and actual salary costs (this can be true for both ARC and ABRs schemes), or salary funding can be adequate, but there is inadequate support for research costs (common both through ABRs and internal university schemes). Providing strategic

support to already successful ECR systematists could allow them to better capitalise on postdoctoral opportunities and improve their competitiveness for more permanent positions.

Although more substantial postdoc support would be desirable, it is not feasible with our current budget, e.g. experience at the University of Melbourne and RBG Victoria suggests a capital of \$2.2 million would be needed to fully support a postdoctoral salary on interest earnings.

Various alternative models for post-doc funding were considered by the committee. These included: 1) a pre-application for funds through ASBS before applying for other funding through postdoc grant schemes; 2) ASBS directly providing funding to help support a postdoctoral fellowship through some other scheme, such as those of ABRs. None of these, including the recommended scheme, are necessarily ideal. Option 1 has the problem that ASBS would be trying to pick winners ahead of other application assessments. Option 2 has the problems that it might be administratively cumbersome (creating agreements with external partners), might abdicate some responsibility over decision-making, and would lock us into one particular scheme. It could potentially help us to leverage funding from external partners, but it could also run the risk of those partners coming to rely on that ASBS funding to support their schemes, resulting in no net benefit for plant systematics.

Our recommendations are nominally for the next six years, to help John Clarkson and the financial investment standing committee plan an investment strategy to match the desired income stream. Review of both investment and grant strategies could be done as the end of that time approaches, unless there was a compelling need for more immediate review.

A further proposal

An additional proposal, not yet considered in detail by the Grants Policy Standing Committee, was raised at the ASBS Council meeting and proposed to members at the AGM. This proposal is to also make use of income from the society's general fund to support research in plant systematics.

In recent years income on investments in the general fund has been on the order of \$10K

per annum, and this is generally reinvested. In the short to medium term some of this income could be diverted to support research with little risk to the finances or other activities of ASBS. The suggestion made here is possibly one \$5K grant per annum, offered on a competitive basis, to support an international trip to attend a

conference, visit a research institution etc.

The details of this proposal need to be more fully considered by the committee and by ASBS council, and feedback on this from other members is welcomed.

Mike Bayly,
Vice President, Chair of Committee

The annual ASBS conference

Building our Botanical Capital, ASBS 2015 conference report

Jessie Knott and Rachael Fowler
The University of Melbourne

On the 29th November systematists from all corners of Australasia (and much further afield) converged on Canberra to share ideas and experiences at the 'Building our Botanical Capital' conference. Things kicked off on Sunday evening at the Australian National Botanic Gardens with drinks and nibbles, and the launch of artist Natalie Maras's 'Interface' exhibition. Her works are beautifully crafted with polymer clay amongst other media. A favourite was the *Dawsonia* depiction, Natalie describing the difficulty in finding fuzzy material suitable to make the sporophytes. This proved a great start to the conference, emphasizing how science and art complement each other, and allow us to look at objects, botanical or otherwise, in an entirely different light.

Monday morning signaled the beginning of plenty of sitting, thankfully in the comfort of the CSIRO Discovery Centre at Black Mountain. Three days of interestingly diverse and educational talks were to ensue. Vicki Funk began with the keynote presentation, taking us

on a tour through her list of influential figures in collections based research, before highlighting the questions and future challenges of herbaria in an age of big data. Gill Brown continued in the theme of collections based science, discussing the application of crowd-sourcing data entry with DigiVol, as a novel and economic way to digitize collections that would otherwise take (literally) decades to complete. Following on, we learnt about lead in lichen, patterns of species endemism across New Zealand, and the role of early missionaries in our current understanding of native and weedy species distributions. Matt Renner gave an animated talk on *Radula* lobule evolution, which finished with him emphatically banging his head on the presentation pedestal at conflicting results. To finish off our first day of talks Ryan Phillips introduced us to his research on the sexually deceptive hammer orchid *Drakaea concolor* and their enigmatic pollinator species, leaving us all with a vivid image of wasp pollinators entering the passenger window of his car at traffic lights!

Fig. 1. Conference breaks (from left). a, Dave Albrecht, Leon Perrie, John Clarkson, Tim Collins; b, Juliet Wege and Ilse Breitwieser.





Fig. 2. Around the conference: anti-clockwise from top (naming left to right).

a, The panel discussion, with Darren Crayn, Roslyn Prinsley, Sue Serjeantson, Mark Tucker, Judy West; b, Matt Baker and Ilse Breitwieser browsing Tanya Scharaschin's botanical crafts for charity; c, Tony and Tessa Orchard selling books to Juergen Kellermann; d, Xenia Weber learning about Mohamed Owis's poster; e, Brendan Lepschi and Juliet Wege ensure the new Dr Telford picks one door prize at the Dinner; f, Brian Quinn, Miguel de Salas, Leon Perrie, Gintaras Kantvilas, Matt Baker, Darren Crayn and Kevin Thiele in a round table conference; g, PNG wantoks: Greg Leach, Janet Gagul, and Robyn and Bill Barker.

Ph. a-e, Murray Fagg; f, Bill Barker

The day finished with a panel discussion on the 'effective transition from science to policy' arranged and ably chaired by Judy West. In an appropriate Canberra setting we were lucky to hear the expert opinions of Darren Crayn (Director, Australian Tropical Herbarium), Roslyn Prinsley (Advisor, Office of Chief Scientist), Sue Serjeantson (previous secretary, Australian Academy of Science) and Mark Tucker (previous deputy secretary, Department of Agriculture, Fisheries and Forestry) express their opinions on competing priorities in policy, the need for scientists to present solutions instead of problems, and the value of well thought out communications strategies.

The beginning of day two focused on genomic data in plant systematics which was followed by an afternoon of phylogenetics. Craig Moritz started the morning with a discussion of complexity in opportunity with regard to next-gen molecular techniques, his explanations of a range of technologies greatly complimenting the topics to follow. Ben Anderson talked about *Triodia*, for which he was to win the Pauline Ladiges Award for best student presentation, while Janet Gagul brought a Papua New Guinea perspective presenting on *Elaeocarpus*. The Decadal Plan was the final topic of the day: we heard from Ilse Breitwieser on the report she and colleagues are preparing on the state of biodiversity science in New Zealand, before an update and keen discussion on the work being done on the plan being compiled here.

The conference dinner was held at University House, and true to form involved much meeting, mingling and merrymaking as well as probably the most extensive door prize raffle we've ever come across! The night closed with the hunt for a drinking hole still open in Canberra on a balmy Tuesday night ... no mean feat, though we finally struck it lucky at Canberra's Uni Pub.

The third and final day of talks centred around electronic floras, and the priorities for ensuring their design and application is both integrated and interactive. Using particularly colourful gardening analogies Kevin Thiele got us all thinking about the innate challenges presented by publishing floras online; challenges vastly different to their traditional book published counterparts. Progress in this task was reported on by Ilse Breitwieser and Leon Perrie representing New Zealand, Frank Zich in the Australian tropics, Michelle Waycott and David Cantrill for floristically diverse South Australia and Victoria respectively, Russell Barrett for the Kimberley, and Zoe Knapp for Australia on the whole. After lunch, organic chemist and lichenologist Jack Elix was awarded the Burbidge Medal for his lifelong contribution to the area. This was followed by an afternoon return to phylogenetics, where we heard about some big decisions in Ericaceae and the tricky to spot *Korthalsella* mistletoes, amongst other interesting topics.

After the final talks, awards, and closing remarks were said and done, everyone walked next door to the Burbidge Amphitheatre in the Australian

National Botanic Gardens to sit in the late afternoon sun, and enjoy the Memorial Ceremony for Hansjörg and Marlies Eichler. It was a truly lovely way to finish the program. Those who knew the couple spoke wonderfully about what it was like to be a student of Hansjörg, with examples of kind actions in stepping aside from alpine buttercups and his allergy to apples. Above all though, we heard about the amazing lifelong



Fig. 3. Jack Elix, Burbidge Medallist (second from left) with fellow cryptogamists, From left: Gintaras Kantvilas, Jack, Patrick McCarthy and Chris Cargill. Ph. Bill Barker



Fig. 4. Attendees of 'Phylogenomic analyses using the multispecies coalescent model' workshop presented by Scott Edwards at the Australian National University. From left, back row: Ryan Phillips, Charles Foster, Brendan Wilde, Endymion Cooper, Mike Bayly, Damien Esquerre, Ben Anderson, Xenia Weber, Rachael Fowler, Todd McLay, James Clugston, Michelle Waycott, Ian Brennan, Ed Biffen; seated: Sarah Matthews, Melodina Fabillo, Peter Weston, Bo-Kyng Choi, Lalita Simpson, Matt Buys, Alexander Schmidt-Lebuhn, Scott Edwards, Russell Barrett.

support the pair made to the area of plant systematics.

Although the conference talks officially finished on Wednesday, on Thursday 3rd December ASBS continued with attendees choosing to participate in a field trip or one of two workshops. We've been told each option was a roaring success, but can personally vouch for the workshop on phylogenomic analysis run by Scott Edwards from Harvard University. Even jetlagged from a long flight from the US, Scott managed to keep us all interested in the finer points of coalescent theory and have us analyzing datasets

in the Bayesian estimation software 'BEST' and statistical platform 'R'. We definitely felt this was a great opportunity, not only to hone our skills in analysis, but also to chat with each other and Scott about the quirks and challenges we face with our own data.

We'd like to extend a massive thank you to all of those that made this conference such a success, particularly the conference organizing committee from the Australian National Botanic Garden, CSIRO and the Australian National University.

We can't wait to do it all again at Alice Springs in 2016!

The Atlas of Living Australia's *PhyloLink* workshop

Matt Renner

Royal Botanic Gardens and Domain Trust, Sydney

Imagine having a well-sampled, well-resolved phylogeny for an Australian plant group. Any plant group you like, could be Myrtaceae, Fabaceae, or Lejeuneaceae. Now imagine being able to query any geospatial aspect of that phylogeny you like, on the basis of all available data-based herbarium records for your sampled taxa. Now take your head out of the clouds and put it straight into one of ALA's tools called *PhyloLink*, because this dream is already a reality.

The ALA workshop hosted by Joe

Fig. 1. Joe Miller at the PhyloLink workshop. Ph. Murray Fagg





Fig. 2. A typical Phylolink screen.

Miller (Fig. 1) was focused around the use of *Phylolink* (Web ref. 1), and its powerful interaction with ALA's Spatial Portal (Web ref. 2). I self-selected for the workshop based on my total ignorance of ALA, and I guess some readers will not be surprised to learn this.

Over the course of the morning we were guided through interacting with these two portals. Basically *Phylolink* allows you to upload any tree and query ALA for the spatial data associated with each terminal in your tree. The browser interface presents the tree on one side, the map on the other, and provides immediate visual summary of the distribution of selected clades and their constituent taxa (Fig. 2).

But your interaction with *Phylolink* can be much more sophisticated than this. You can plot character data onto the tree and map, as in the above (which I have plagiarized from the workshop materials because I can't figure out where my Mac puts screenshots). Tools exist within ALA for 'cleaning' the spatial records

environmental data associated with these observations.

From simply mapping species distributions (publication quality distribution maps are derivable from the website if you have a retina screen) to exploring spatial patterns of phylogenetic diversity, to exploring environmental parameters of phylogenetic diversity: *Phylolink* has something for everyone, and everyone should be making more use of it. If a workshop on *Phylolink* is run again, I strongly recommend attending.

Alternatively, visit the *Phylolink* website and watch the *Phylolink* screencast (Web ref. 3) and then have a play with the demonstration visualization (Web ref. 4).

Web references

1. <http://phylolink.ala.org.au/>
2. <http://spatial.ala.org.au/>
3. <http://phylolink.ala.org.au/#myModal>
4. <http://phylolink.ala.org.au/phylo/show/274>

Hey ho, let's go: the 2015 ASBS post-conference field trip report

Juliet Wege
Western Australian Herbarium

It seemed appropriate that the *Building our Botanical Capital* post-conference day trip started with a drive-by by none other than Anna Monro. Having kept the conference running smoothly and to schedule with understated brilliance, she couldn't resist the opportunity to cruise past the field trip departure point with the windows down so that she could wryly

comment to the field trip organisers that they were running late. Apparently someone had forgotten to pick up the lunch. But it wasn't long before our convoy of vehicles was on the road and heading south-east to our first stop, Cuumbeun Nature Reserve near Queanbeyan, in the southern tablelands of New South Wales.



Fig. 1. A – Brendan Lepschi leads the way at Cuumbeun Nature Reserve; B – bird-obsessed duo John Clarkson and Mark Wallace; C – *Goodenia hederacea* subsp. *hederacea*; D – John Clarkson relishes a golden pash; E – tree ferns in Tallaganda State Forest.

Ph. J. Wege



Fig. 2. A – Nunzio Knerr digests asparagus on the walk to Lowden Creek; B – Clockwise from top left: Bronwyn Collins, Nunzio Knerr, Chi-chuan Chen, John Clarkson, Mohamed Owis, Ilse Breitwieser, Juliet Wege, Nanette Hooker, Dave Albrecht, Janet Gagul, Mark Wallace.; C – Janet Gagul collects *Elaeocarpus holopetalus* and Dave Albrecht looks quietly satisfied; D – *Prostanthera lasianthos* in *E. pauciflora* woodland; E – Chi-chuan Chen and Bronwyn Collins inspect and sample Mountain Pepper.
Ph. I. Breitwieser, B. Lepschi and J. Wege

Our botanical tour leader, none other than the infamous Brendan Lepschi, had accidentally selected a suitable t-shirt for the occasion (Fig. 1A) and so we deferentially followed him (and the Ramones) on a gentle stroll through the dry sclerophyll forest. After spending three days indoors, it was a delight to feel the sunshine on our backs (Canberra turned on some wonderful weather for our excursion, or perhaps this was Anna's doing, such is her proficiency...) and also to smell the eucalypts; and there were plenty of these on offer, including *Eucalyptus rossii*, *E. nortonii*, *E. macrorhyncha*, *E. mannifera*, *E. polyanthemos* and *E. melliodora*.

While the season was well-advanced, some flashes of colour remained in the understorey and between Brendan and Dave Albrecht, both of whom have breathtaking botanical knowledge, our queries were readily answered. While some of us were clearly more interested in the birdlife (Fig. 1B), others marvelled at *Gompholobium huegelii*, in full flower with its strikingly large, bright yellow flowers, and pockets of herbs such as *Thysanotus tuberosus* subsp. *tuberosus*, *Goodenia hederacea* subsp. *hederacea* (Fig. 1C) and *Stylidium graminifolium*. Indeed, this was Mohamed Owis's¹ first encounter with a triggerplant; after 20 years of research on the group, my triggering demonstration didn't work (much to everyone's amusement), but Mohamed was able to salvage the show on the last remaining flower. *Rytidosperma pallidum*, a species with striking orange-red anthers that is common in dry woodland around Canberra, was just coming into flower and provided Nanette Hooker with a southern analogue in one of her specialities, marine algae being otherwise somewhat thin on the ground on this particular trip.

After a shot of strong coffee and a homemade snack, we moved on to Tallaganda State Forest in the Great Dividing Range, arriving in time for lunch in some wet sclerophyll forest. In addition to the simple but tasty picnic fare largely assembled by our charming support crew of Nunzio Knerr and Bronwyn Collins, we were treated to some cheeky fried zucchini flowers, handpicked with love in the early morning by Nunzio's mum; together with the

blanched asparagus lightly dressed in olive oil and perfectly seasoned, they were a highlight of my day. In contrast, John Clarkson appeared to be in heaven with his golden pash (Fig. 1D).

Our post-lunch walk (Fig. 1E, 2A) took us down to Lowden Creek through forests of *Eucalyptus fastigata*, *E. viminalis*, *E. radiata* and the type species of the genus *Eucalyptus*, *E. obliqua*. A stunning gully filled with *Dicksonia antarctica* brought a gorgeous smile to Ilse Breitwieser's face (come to think of it, I don't think that smile disappeared for the entire conference!). Large mossy boulders in the gully yielded Kangaroo Fern *Microsorium pustulatum*, and Chi-chuan Chen was thrilled to be able to obtain collections towards her PhD at the University of Helsinki. Dotting the landscape were historic remnants of an old logging camp from the 1930s known as Lowden Forest Park, including a fabulous steam engine, which formed the backdrop for the traditional group photo (Fig. 2B).

En route to some higher altitude vegetation in Tallaganda National Park, we suddenly pulled to the side of the road (a true botanist's stop) to look at *Elaeocarpus holopetalus* in full flower. Janet Gagul was thrilled to collect material to aid her phylogenetic studies of the genus (Fig. 2C), and Dave, Bronwyn and Brendan were quietly satisfied that their field trip planning had resulted in a second key collection for the day.

At a higher elevation we stopped to admire *E. pauciflora* woodland and the magnificent *Prostanthera lasianthos* (Fig. 2D), at which point a spotted quail thrush (*Cinclosoma punctatum*) was briefly glimpsed, much to John's and my delight. *Tasmannia lanceolata* was dutifully tasted (Fig. 2E) and I found myself thinking that would be great ingredient in an artisanal gin (which I later and rather unsurprisingly discovered had been done and moreover that I'd sampled it!).

Further along the road, we found a range of herbs still in flower such as *Arrhenechthites mixtus*, *Veronica perfoliata* and *Stackhousia viminea*, and had another triggerplant sighting, one of four for the day from the *S. graminifolium/armeria* species complex. I was beginning to have my suspicions that the trip's itinerary had been designed to tempt me to move east to work on this most difficult of

¹ Mohamed prefers Owis, though he used Badry and Barbary from his full name at the conference. Eds

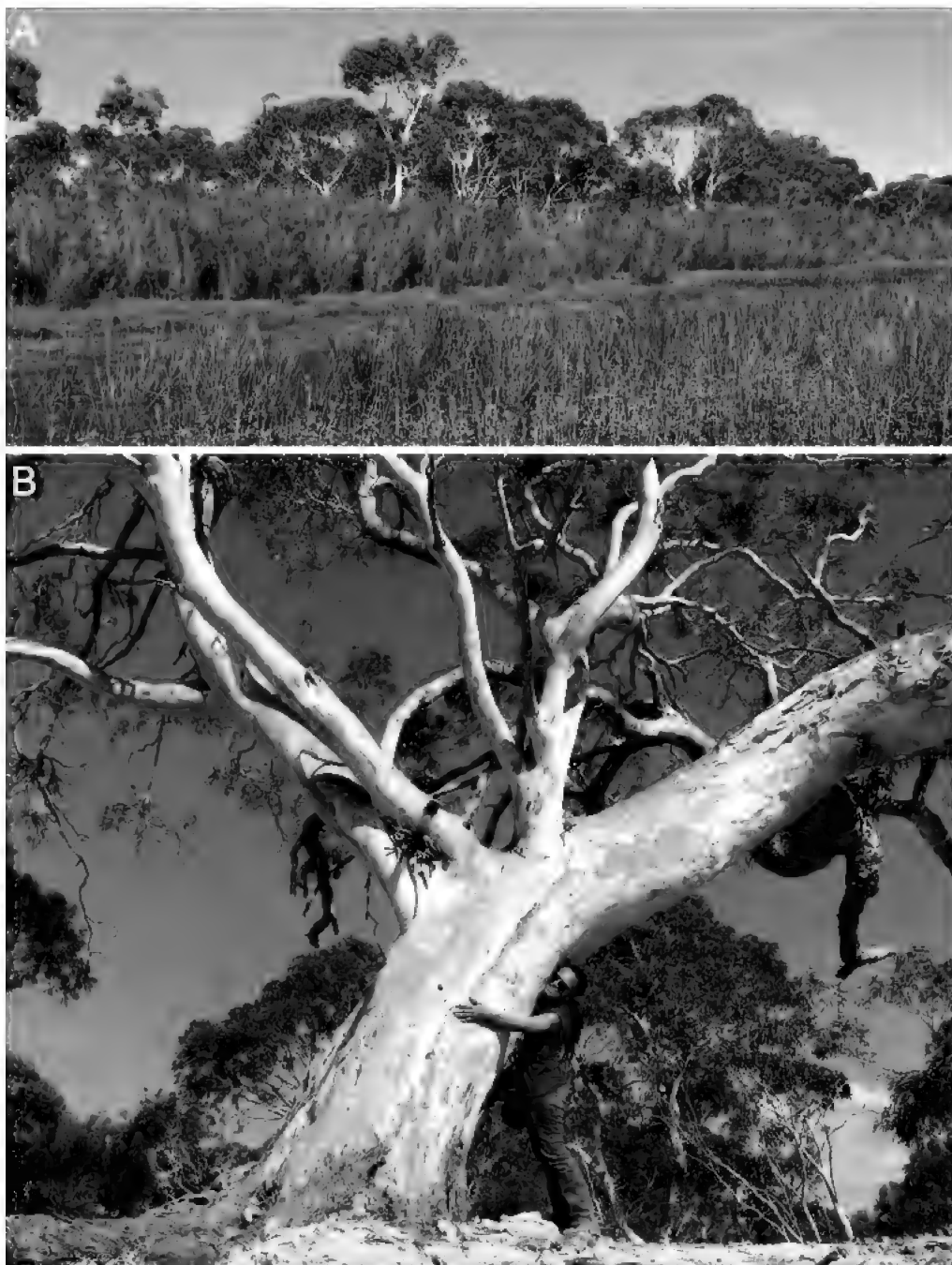


Fig. 3. A – Back Creek Travelling Stock Reserve; B – Janet Gagul and the irresistibly huggable *Eucalyptus rubida*.
Ph. J. Wege

taxonomic complexes (surely life is too short to be tempted into that quagmire?).

Our last stop was Back Creek Travelling Stock Reserve where, together with the flies, we strolled through woodland and grassland, and poked around the margins of a swamp teeming with *Ornduffia reniformis* and *Nymphoides*

montana (Fig. 3A). Other highlights included a population of an undescribed species of *Lobelia*, recently discovered at this site on a pre-field trip recce by Dave Albrecht growing with the superficially similar *Isotoma fluviatilis*, and a single, flowering *Craspedia variabilis* to keep Ilse smiling. The crowning glory of the

day was a magnificent specimen of *Eucalyptus rubida* standing proud in the late afternoon light; some things are irresistibly huggable as Janet discovered (Fig. 3B). On the way back to the cars, Mark Wallace finally stopped looking at birds when Brendan and Dave unearthed a small population of *Arthropodium fimbriatum*, and he assumed the botanist pose to suck in its heady aroma (alas, no photograph...).

Having satisfied nearly everyone's particular botanical (or ornithological) desires, one still

remained outstanding: Old World Hibisceae for Mohamed. Steadfastly refusing to accept defeat, Brendan duly presented Mohamed with a depauperate specimen of *Modiola caroliniana* (close enough...) from the public park in Braidwood in the dying moments of the fieldtrip. Suitably replete, botanically and otherwise (courtesy once again of Nunzio and his mum), we headed back to Canberra, tired and contented, and already looking forward to the 2016 ASBS conference in Alice Springs.

The Nancy Burbidge Medal

Jack Elix, the Nancy Burbidge Medallist for 2015

Jack Elix is a clearly deserving recipient of the 2015 Nancy Burbidge Medal as a lichenologist. Over many years he has significantly contributed to the systematics of lichens in his region and globally.

The Canberra Chapter of the Australasian Systematic Botany nominated Jack for the Medal, continuing a tradition of nominations by conference organising committees. The Nancy Burbidge Lecture, proposed by the Canberra Chapter in 1978 (Wilson 1978). The first invited speaker at the annual conference was Selwyn Everist (1979) of the Queensland Herbarium. This eventually evolved into the Nancy Burbidge Medal the Society's most prestigious award, first presented in 2001.

The concept of a Medal has allowed a recipient to receive the award without giving a Lecture, although, appropriately, giving a fitting lecture continues to be the norm. Because of concerns for Jack's health, the Society agreed, for the first time, to have a laudatory lecture provided by a colleague, Gintaras

Kantvilas, another of Australia's leading lichenologists.

Gintaras had provided ASBS Council a reference highly supportive of Jack's nomination. We have also included the tribute of the other referee, Patrick McCarthy, which details the many major achievements of Jack's life in lichenology.

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Everist, S.L. (1979). The role of herbaria today. *Search* 10: 308–311.

Wilson, K. (1978). Nancy T. Burbidge Memorial Lecture. *Australasian Systematic Botany Society Newsletter* 14: 6–7.

Bill Barker & Darren Crayn
Immediate past and current Presidents, ASBS



Fig. President Darren Crayn presenting the 2015 ASBS Medal to Professor Jack Elix.

Ph. Bill Barker

John Alan (“Jack”) Elix: Nominee for the 2015 Nancy T. Burbidge Medal¹

Patrick M. McCarthy
Australian Biological Resources Study, Canberra, A.C.T.

The first lichen collected by Jack Elix was *Pseudocyphellaria crocata*, a luxuriant, leafy species from Molonglo Gorge Reserve in the Australian Capital Territory in January 1971 (JAE-001; CANB). Subsequently, he explored most corners of Australia and many regions beyond, building a 50,000 specimen collection of highest-quality specimens now held in the Australian National Herbarium (CANB).

Many of Jack’s early published contributions to lichenology were those of an organic chemist coming to grips with the unique metabolites of a remarkable group of organisms. Before long, however, he began to decipher the intricacies of lichen structure and chemistry, first of the Parmeliaceae, the largest family in the Australian lichen flora and, subsequently, many other lichen groups from Australia, throughout much of the tropics and most parts of the Southern Hemisphere. Today, his name is indicative of lichen taxonomy of the highest quality, based on an enormous body of experience in collecting, determining and documenting lichens coupled with an unparalleled grasp of the structure, metabolic pathways and taxonomic significance of lichen compounds. Decades of field-work throughout Australia have also given Jack a most impressive understanding of the Australian biota, vegetation types, climate and lichen communities which he is always ready to share with colleagues and visitors and which greatly enhances the value of his specimens and the experience of shared field-work.

Highlights

- The Parmeliaceae are by far the most diverse and ecologically significant family of lichens in Australia. That it is so well known today is due largely to the efforts of Jack Elix. Important revisions of *Hypogymnia* (1980) and the almost 300 species of *Xanthoparmelia* (1986), as well as numerous papers, culminated in the publication of *Flora of Australia* volume 55 (Anon. 1994),

with Jack the lead author, contributing treatments for all but a handful of the 26 genera and 386 species of Parmeliaceae. World-wide revisions of the parmelioid genera *Relicina* (1996) and *Paraparmelia* (2001) followed.

- During and after this period and in subsequent years Jack, always a strong supporter of the *Flora of Australia* and the principal enthusiast and promoter for the inclusion of lichens in that series, has contributed substantial revisionary treatments to all five published lichen volumes.
- He has described hundreds of new taxa in Australia and elsewhere, including *multiple* species in genera including *Amandinea*, *Austrographa*, *Austroparmelia*, *Baculifera*, *Brigantiaea*, *Buellia*, *Bulbothrix*, *Caloplaca*, *Canoparmelia*, *Chrysothrix*, *Cladia*, *Cladonia*, *Cratiria*, *Cryptothecia*, *Diploschistes*, *Dirinaria*, *Flavoparmelia*, *Gassicurtia*, *Graphis*, *Herpothallon*, *Heterodermia*, *Hypogymnia*, *Hypotrachyna*, *Lecanora*, *Lecidella*, *Lepraria*, *Letrouitia*, *Melanelia*, *Myeloconis*, *Myelochroa*, *Notoparmelia*, *Ochrolechia*, *Paraparmelia*, *Parmelia*, *Parmelinopsis*, *Parmotrema*, *Pertusaria*, *Phyllopsora*, *Physcia*, *Protoparmelia*, *Pseudoparmelia*, *Punctelia*, *Pyxine*, *Ramboldia*, *Rhizocarpon*, *Rinodina*, *Strigula*, *Tephromela* and *Xanthoparmelia*.
- The renaissance that has taken place in Australian lichenology since the mid-1980s has been guided and largely effected by Jack Elix. Thus, a rather poorly understood peripheral flora has been transformed into a well-documented, speciose biota integrated with those of our neighbours and the wider world. Importantly, a 60% net increase in the number of known taxa has been accompanied by the reduction of hundreds of superfluous names to synonymy, and the exclusion of many other previously misidentified lichens (McCarthy 2015).
- Jack has compiled and distributed ~11 fascicles and 275 numbers of *Lichenes*

¹ This is one of the referee reports for Jack Elix’s nomination for the Burbidge Medal

Australasici Exsiccati (1982–1994) which have been most influential in giving the international lichen community a ‘taste’ of Australian lichens.

- His manual of lichen chemotaxonomy, *A Catalogue of Standardized Chromatographic Data and Biosynthetic Relationships for Lichen Substances*, has become indispensable for lichenologists throughout the world (Elix 2014).
- The ‘go-to’ man for lichenologists on all continents as the oracle of lichen chemotaxonomy, Jack has been the recipient of crates of Australian and overseas specimens for analysis representing, for example, the Lecanoraceae [with H.T. Lumsch (Chicago)], Graphidaceae [A.W. Archer (Sydney)], Lobariaceae [the late D.J. Galloway (Dunedin)], Thelotremaaceae [A. Mangold (Berlin) & H.T. Lumsch], Pertusariaceae [A.W. Archer] and Teloschistaceae [S. Kondratyuk (Kiev) & I. Karnefelt (Lund)], all leading to substantial published revisions.

Retirement years

Since his formal retirement as Professor in Chemistry at the Australian National University in 2002, Jack’s productivity has blossomed. Freed from administrative and teaching duties, he has taken on and completed many small and large, solitary and collaborative projects, resulting in more than 330 peer-reviewed publications.

In recent years, while making numerous, important contributions across a diverse suite of groups in the Australian lichen flora and beyond (e.g. in Arthoniaceae, Haematommataceae, Lecanoraceae, Phyllopsoraceae, Stereocaulaceae and others), Jack has developed a particularly keen interest in the family Physciaceae. During the twentieth century the accepted Australian diversity of this family had expanded in a haphazard way largely characterised by poorly circumscribed taxa, and a sometimes uncritical reliance on European and Asian names. Jack has brought his skills as a collector, curator, chemist, microscopist and

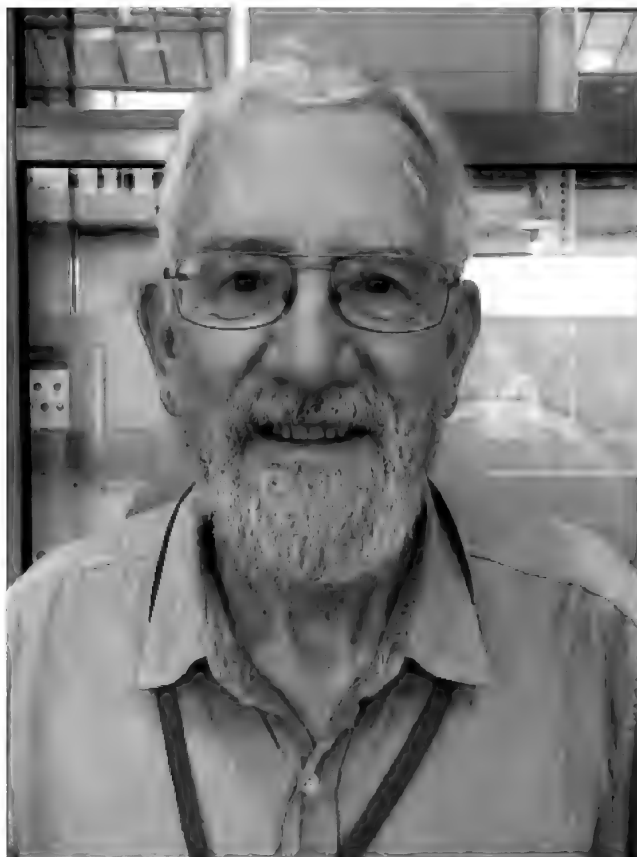


Fig. Jack Elix at the ASBS Conference 2015.
Ph. D. Crayn

taxonomic analyst to bear on the family and on its largest genus, the almost intractable *Buellia sens. lat.* Currently, the family is represented in Australia by 272 species and infraspecific taxa in 22 genera, many described and most revised by Jack Elix (2011).

In 2001, Jack was honoured by the international lichenological community with a *Festschrift* marking his 60th birthday (McCarthy *et al.* 2001). When asked to contribute papers, the uniformly enthusiastic response from 54 lichenologist friends and colleagues confirmed the exceptionally high regard in which Jack is held both at a professional and a personal level, particularly a testament to Jack’s deserved reputation as the leading expert on lichen secondary metabolites and as an highly respected lichen taxonomist.

In 2004, Jack Elix was awarded the Acharius Medal by the International Association for Lichenology in recognition of his life’s work. Part of the citation reads:

In addition to his chemical research, Jack has become a lichen systematist of extraordinary skill, who has now published over 450 new species. In collaboration with Kurokawa he published in the early 1970s his first papers on Australian Parmeliaceae on species now placed in *Xanthoparmelia*, and by the late 1970s he had published his monograph, on the Australasian *Hypogymnia*. For many years he collaborated extensively with the late Mason Hale bringing the systematics of the Parmeliaceae, the largest family of the lichenized fungi, into much sharper focus. Since Mason's death in 1990, Jack has been the world's primary expert on the Parmeliaceae with a focus in recent years on collaborating with Ana Crespo and colleagues on molecular investigations in the family. Through his industry many of the major genera (*Paraparmelia*, *Pseudoparmelia*, *Psiloparmelia*, *Relicina*) in that family have now been monographed at the world level. In addition, many major revisions have been published at the continental scale (e.g. *Xanthoparmelia* for Australasia and later South America; most of the Parmeliaceae for Australia in Vol. II of the Australia Flora, and *Hypotrachyna* for the Flora Neotropica [in ed.]). Through his efforts in obtaining research money, conducting research on his own and nurturing the efforts of younger colleagues, Jack has been one of the primary forces behind the inclusion of lichens in the *Flora Australia* project, that now includes four major volumes. Broad interest in the Australian lichen flora has led Jack to investigate many other lichen groups outside of the Parmeliaceae, including *Amphorotheccium*, *Buellia*, *Cladia*, *Kantvilasia*, *Labyrintha*, *Lecanora*, *Myeloconis*, *Myelorrhiza*, *Pertusaria*, *Physma*, *Physcidia*, *Ramboldia*, *Siphulella*, *Strigula*, and *Tasmidella*, several of which were newly described genera to science. Furthermore, his regional focus on Australia has been ever expanding to major investigations, initially with his good friend and collecting partner Heinar Streimann in Papua New Guinea, and subsequently in collaboration with students and colleagues throughout Oceania and SE Asia. T.H. Nash [<http://www.lichenology.org/>]

On a personal level Jack Elix is a gifted and patient mentor with a great generosity of spirit, and many local and visiting lichenologists have, over the years, enjoyed the hospitality of Jack

and his late wife Joan at their home in Aranda. Indeed, one of the considerable pleasures for those of us engaged in lichenological research from an Australian base has been the greater frequency of such convivial times. Fortunately, this long, varied and enormously productive career continues, as Jack, still the most meticulous and punctual collaborator with regard to the research priorities of others, turns his own focus to the major task of resolving *Buellia* in New Zealand.

Jack Elix has had a profound impact on Australian lichenology, and substantial influence on the discipline on a global scale. His life's work as an organic chemist and botanist has yielded scholarship of the highest quality, and he would be a most worthy recipient of this prestigious award.

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13 May 2015

Nancy Burbidge Lecture 2015 Jack Elix and Australian lichenology

Written and delivered by Gintaras Kantvilas in honour of Jack Elix

This is a rather unusual situation for the Burbidge medal ceremony, in that the recipient is not delivering a Burbidge Lecture. Instead this presentation is an extended *Laudatio* – a commendation – for this year's medallist, Professor John Alan Elix, better known to all as Jack (Fig. 1). The event is unusual for another reason. It is the first time it is being awarded to a lichenologist. However, it is not the first time

Nevertheless, lichenology in Australia boasts a proud history. The first Australian lichen specimens were collected in Tasmania by the French botanist Labillardière in the early 1790s. Based on these collections, Australia's first species, the striking *Cladia retipora*, was described in 1804, and several others followed, described by other European botanists. Many other notable botanical visitors to Australia,



Fig. 1. Jack Elix in his natural habitat. On Mount Eliza in Tasmania's South-West, 1993. Ph. G. Kantvilas.

that the Burbidge Medal has been awarded for contributions to cryptogams; the bryologist, the late George Scott, received it in 1994.

Lichenologists are pretty scarce in Australia. If one measures the popularity of a sphere of botany by attendance at meetings, then we are very few indeed. About 20 years ago, we might have attracted a couple of dozen people to our biennial gatherings, and had a day of formal talks as well as a field trip. These days, unfortunately, attendees fit comfortably into a small car and there are no talks, but we do get out on a field trip.

for example Robert Brown and Joseph Dalton Hooker, also collected lichens which they either worked on and published themselves, or distributed to the herbaria of Europe to be worked on by others. Amongst the resident Australian collectors and botanists, familiar names who made significant contributions to lichenology include Ferdinand Mueller, F.R.M. Wilson, F.M. Bailey, Leonard Rodway, Edwin Cheel and John Shirley.

Thus by the beginning of the 20th Century, Australia boasted large numbers of lichen species described chiefly by Europeans but

based on the collections of locals. There were also catalogues of species for Tasmania and Victoria by Wilson, a flora for Queensland by Shirley, and a bibliography by Cheel. Sadly, lichenology declined in the decades to follow, but it re-awakened in the second half of the Century as part of a general lichenological renaissance, led chiefly from Scandinavia, Great Britain and Central Europe. The Sydney International Botanical Congress in 1981 brought many of the world's leading lichenologists to Australia, saw several symposia devoted to lichens, pre- and post-Congress lichen field excursions, and left a lasting and inspirational impression on the

organism, namely an alga or cyanobacterium, and a fungus, usually an ascomycete. Together these two components produce something that has a morphology that is unique and totally unlike either partner, a unique physiology and biochemistry, and a unique ecology. The two component organisms draw nutrients from each other, and lichenisation enables them to colonise a wide range of often-inhospitable environments. Lichens occur on all continents, from below the high water mark to the tops of the highest mountains, and penetrate Antarctica as far south as latitude 86°. The construction of a lichen may be relatively simple, but they are certainly not primitive. Their existence



Fig. 2. Jack Elix with friends and colleagues in south-eastern Austria, 1996. From left: Mats Wedin, Jack, Ulli Grube, the late Joan Elix, Gintaras Kantvilas, Martin Magnes, Anita Wippel, Martin Grube, Christian Scheuer.

Ph. G. Kantvilas.

locals. Today, despite the dwindling numbers of adherents, Australian lichenology has an actively maintained checklist of some 3800 taxa, five hard copy volumes of the *Flora of Australia* series, and many additional electronic-only treatments. Lichenologists are also steadily adding to Australia's biodiversity inventories and data libraries through on-going collecting and taxonomic research, and by participation in programmes such as Bush Blitz.

Lichens are remarkable organisms. Together with mosses, liverworts, algae and fungi, they are often referred to as "lower plants" or "non-vascular plants". However, they are unique in this company in that they are not a single plant but a symbiotic association between two separate entities: a photosynthesising

depends on the complementary evolution of the photobiont and the fungus, as well as the means of forming an association between the two.

Perhaps of most relevance to systematic botanists, however, is that the classification of lichens is based on the fungus. It is the fungus that produces the sexual reproductive structures. A lichen fruiting body or apothecium is essentially a fungal structure devoid of photobiont cells or with these cells limited to its margin. The apothecium produces fungal sexual organs, typically asci, containing fungal spores. It is the fungus that is unique to lichens, whereas the same photobiont taxon can be shared by more than one species of fungus. Thus every lichen taxon, every lichen name, refers to the fungal partner and only to the

fungal partner. Lichens are governed by the same *International Code of Nomenclature* as are other plant groups, but, like mycologists, lichenologists follow a formal procedure of registering names, using a facility called MYCOBANK. Although lichenisation is now thought to have arisen independently several times over, most groups of ascomycetes have no lichenised members, whereas others are entirely lichenised or almost so. The cross-over between lichenology and mycology, at species, genus, family and even order rank, is slight. Whilst some might suggest that lichenisation is merely a fungal life-style, rather like mycorrhizae, to lichenologists, lichens are special, and it is lichenology itself that is the life style.

It is not always quite so simple as one fungus plus one alga equals one lichen. There are cases of one fungus associating simultaneously with two photobionts: one a green alga and the other a cyanobacterium. For example, in the genus *Placopsis*, the primary photobiont is green alga, but cyanobacteria are also present within specialised structures called cephalodia. Then there are cases of a two fungi plus one alga, where a secondary, non-lichenised fungus, termed a lichenicolous fungus, is associated with the thallus of a lichen. Such associations are usually highly host-specific. For example, the fungus *Arthonia insularis* is known to infect only *Caloplaca eos*, and not any other, related *Caloplaca* species that might occur in the same habitat in close juxtaposition. There are also cases of a four-way symbiosis, where one lichen inhabits, or at least begins its life associated with another lichen. A good example is the crustose lichen *Diploschistes muscorum*, consisting of an Ostropalean fungus and the filamentous green alga, *Trentepohlia*, which associates with the squamulose thallus of a *Cladonia* species, comprised of a Lecanoralean fungus and a coccoid green alga.

However, by far the most interesting association is where the same fungus associates with two different photobionts at different times to produce two completely different looking organisms. For example, the foliose lichen *Sticta stipitata* (which according to the rules of nomenclature means the fungus described as *Sticta stipitata*) is typically associated with a green alga and produces a green, leafy,

lettuce-like thallus. However, the same fungus can also be associated exclusively with a cyanobacterium, and produce a shrubby, blue-green coloured thallus, which, because it looks different, has historically been given a different name – *Dendroscocaulon dendrothamnoides*. Occasionally the same thallus may display both the *Sticta* morphology and the *Dendroscocaulon* morphology simultaneously in different portions. That it is indeed the same fungus involved has been established beyond any doubt by anatomical and ultrastructure studies. The rules of nomenclature dictate that the same name *Sticta stipitata* is applied to both entities, but then a lot of other information, beyond phylogeny, that a taxonomic name conveys is lost: about an organism's morphology, physiology, ecology and geographical distribution.

Telling lichens apart is no different from distinguishing any group of organisms. It has often been remarked (even by people who might work on eucalypts or grasses) that “all lichens look the same”. The truth is that once you get your eye in, and you have a basic grasp of your flora, distinguishing lichens is no different to working with any other group. Firstly there are macro-morphological features: whether something is shrubby, or foliose or crustose, or maybe has no obvious thallus at all. Colour can also be a helpful character. Such features readily distinguish many species, just as they would in any plant group. The presence or absence of asexual propagules are usually good species-rank characters. These are specialised structures called isidia or soredia which allow the lichen to disperse both of the partners of the symbiosis together.

Features pertaining to sexual reproduction are vital, particularly at genus rank or above; for example, the anatomy of the fruiting body or apothecium— not just the gross appearance but how the hyphae are pigmented and arranged internally. The structure of the ascus is absolutely critical, and preparing, observing and interpreting this is one of the key characters for determining the genus, family or even order. Also important is the morphology of the spores and interascal hyphae. There is no doubt that identifying lichens, especially crustose species, requires extensive use of a high-powered compound microscope, and some skilled use of

a razor blade and several stains and reagents. However, these skills can be attained with perseverance, and with practice, most species, however small, can be distinguished by eye or with a hand-lens.

There is one further taxonomic character that is particularly relevant to today's ceremony, and that is lichen chemistry, the field in which Jack Elix is most renowned. Lichens produce a unique suite of natural products that are applied in a wide range of industries, from pharmaceuticals, to perfumery and dyeing. The earliest application of lichen chemistry to taxonomy was very simple. The cortical pigments, whether species were grey or orange or yellow or brown, were used to distinguish species and genera. However, of more interest to the taxonomist or biochemist is what lies within. In 1866, the French lichenologist, William Nylander, published two pivotal papers in the journal *Flora* where he described his observations that the application of two standard reagents— Calcium hypochlorite (or bleach) and Potassium hydroxide— yielded different but consistent colouration when applied to the thalli of different lichens. Nylander was able to demonstrate that certain taxa whose separation had caused confusion in the past could consistently and repeatably be distinguished by these simple chemical means. This discovery opened up a new vista for lichenology, and soon these simple tests became routinely applied – C (for Calcium Hypochlorite) and K (for potassium hydroxide). A further standard reagent, paraphenylenediamine, abbreviated to P, was taken up later.

Today it is generally accepted that simply spotting with K, C and P is not sufficiently accurate, as many quite unrelated compounds can yield the same reactions. It is critical to know what the compounds are. In the 1930s, the Japanese lichenologist, Asahina, determined the structure of many lichen compounds, and developed specialised micro-recrystallisation tests for their identification. Crystal tests were soon superseded by thin-layer chromatography, using a standardised method and suite of solvents developed in the 1970s by Chicita Culberson and collaborators in the USA. Thus by the latter part of the 20th Century, it was standard practice in lichen taxonomy to include reference to the chemistry of species. More

recently, an even more sophisticated method, high performance liquid chromatography, has been applied.

The fundamental principles that underpin the application of chemistry to lichen taxonomy are, firstly, that some metabolites are taxon specific; and secondly, that the majority of taxa have a constant chemical composition regardless of their stage of life, or their geographical or ecological distribution. Also critical is the fact that the metabolites are stable over time (usable extracts can be obtained from herbarium specimens hundreds of years old), and that they can be readily identified by standardised methods.

The taxonomy and nomenclature of the compounds varies. Some compounds are conveniently named after a lichen they occur in. For example, usnic acid is the yellow pigment that gives Old Mans Beard, the genus *Usnea*, its characteristic colour; it also occurs in a lot of other yellowish lichens. But contrast that with names like 2,5,7-trichloro-3-O-methylnorlichexanthone, a compound that also produces a yellowish colour in some other species.

There is sometimes a perception that lichen chemistry drives taxonomy, and that any chemical difference is immediately accorded taxonomic recognition. Unfortunately this may be true in some instances, although taxonomic recognition is rarely ascribed uncritically. As Jack himself wrote in one of his earlier papers,

One can argue ad nauseam whether chemically characterised populations represent species, subspecies or whatever, but almost no-one will deny that chemical products reflect taxonomic relationships.

It is also important to recall Nylander's observations from the 1860s, when he wrote:

Chemical characters have also this advantage ... that we are guided by the differences manifested through the reaction to search with more attention for organic characters; and as a general rule, we shall not fail to find them.

This has certainly been the approach taken in many collaborative projects with Jack. A prime example was our revision of the *Cladia aggregata* group in Australia. *Cladia aggregata* is probably Australia's most common and

Fig. 3. Jack Elix with his *hplc* equipment at ANU's Chemistry Department.
Ph. U. Söchting.



widespread lichen. When he revised *Cladia* in the 1970s, Rex Filson saw *C. aggregata* as a morphologically variable species capable of producing a great range of chemical strains. Not being a chemist myself, and living in a *Cladia* wonderland in Tasmania, that suited me just fine. In the course of my trying to convince Jack that Filson was correct, we analysed hundreds of *Cladia aggregata* specimens, and uncovered very clear correlations between chemistry and morphology, anatomy, spore and conidial characters, and geographical distribution. As Nylander would have approved, once the specimens were sorted by chemistry, many other characters became obvious, and as a result, *Cladia aggregata* was subdivided into eight clear-cut species that are morphologically recognisable. Similar productive collaborations on other groups have not always been chemically driven. For example, in the crustose genus *Lecidella*, the reverse approach was used, and subtle anatomical and morphological differences were subsequently found to be correlated with chemical characters, and so chemistry provided a powerful supporting character to the species classification.

To me, chemistry is not a panacea but a tool, and one of many. I use it to aid or confirm identifications, because it can serve like fingerprints— an unequivocal character when morphological or anatomical ones may be blurred or difficult to observe or interpret. It

also provides clues to affinities between taxa, and above all else, it serves as an alert for unusualness.

The relative importance placed on chemical differences varies, and like the application of particular characters in other organisms, can be influenced by tradition or taste. For example, in the Parmeliaceae, chemistry has been used as a critical species-rank character. In the genus *Cladonia*, however, many chemical differences are recognised at varietal rank. In some other groups, taxonomists talk of chemical races. Today molecular techniques are being used to understand more about what lies behind the chemistry, and, as one might expect, with mixed results and with varied interpretation. Thus whereas some essentially chemically-based taxa have been confirmed by DNA data, others have been called into question. For example with the widespread crustose genus *Tephromela*, Muggia and co-authors found that several characters, including chemistry, that had been used as species differentiators were better interpreted as locally developed features that were part of the infra-specific diversity of very widespread species.

Jack's contributions to lichen chemistry are many-faceted. He started life as an organic chemist. He was on a CSIRO Fellowship to Cambridge in 1966 where he shared a bench with a colleague working on lichen products,

and compared to that, he found his own work boring. So he went to the library to find out more on lichens, but found nothing there because it was a chemistry library. However, in a local book shop he managed to find a second hand copy of Mason Hale's seminal work, *How to Know Lichens*. This book at least had one chapter on very basic lichen chemistry. On his return to Australia, Jack attended a third year semester course at ANU on lichens, offered by a visiting Scandinavian lichenologist, Eilif Dahl. This got him started. It was a period when lichen compounds were starting to be used to assist identification, and the first stirrings of a resurgence in Australian lichenology were happening.

Jack's first taxonomic project was revising the genus *Hypogymnia* for Australia, published in 1979. From *Hypogymnia* he moved to other genera of the Parmeliaceae, with a specific interest in *Xanthoparmelia*. In many ways, this was the perfect focus for him. It is a genus with a very strong Australian centre of speciation. It grows everywhere, and in fact as the plane descends into Canberra, masses of green-coloured *Xanthoparmelia* can be seen on the rocks below the flight path. *Xanthoparmelia* also displays very interesting patterns of chemical diversity. Jack's interest in Parmeliaceae brought him into close contact with many other lichenologists, notably Mason Hale in America and Syo Kurokawa in Japan. The timing of his entry into lichens coincided with the subdivision of many of the old form genera, and *Parmelia* was no exception. Jack was instrumental in the carve up of this genus into more natural units. As a result, his name figures in collaborative studies and revisions of the group from all regions of the world. Today he still collaborates with the current crop of researchers who are now applying molecular techniques in refining the classification of the family.

The critical contribution Jack made to lichen chemistry is that he helped to shift the science from ad hoc observations of simple colour reactions or even movements of spots on a *tlc* plate to actually understanding what the compounds were and how they were biosynthetically related. In this he collaborated with other lichen chemists around the world, most notably such 'greats' as Chicita Culberson

in the USA and Siegfried Huneck in what was then East Germany. Jack was a key player on the world stage in bringing lichen chemotaxonomy into general use. A concern is that as Jack and these other giants retire, lichen chemistry may again devolve to be something less rigorous, and that the skills to identify lichen compounds accurately could wane.

Jack's greatest contribution was his refining and standardising the application of high-performance liquid chromatography (*hplc*) to lichens. He developed a library of spectra of known lichen compounds, and then with the help of a computer whiz colleague, Hector Rodriguez, modified a commercial application so that a computer could match spectra of unknown samples against the library. It was a capability that nobody else had. The impact of this revolutionary work is demonstrated by the great body of his publications in this field or using results derived by *hplc*, and also, less obviously, by the loss that the world lichen community feels so keenly since Jack and his *hplc* equipment retired.

I hope you have not formed the impression that Jack just sits in a chemistry lab wearing a white lab coat. He is happiest in the field collecting specimens, preferably with close friends, wearing his trade-mark hat that mysteriously never blows off and never gets crushed. He has amassed many thousands of specimens from all States and Territories, as well as places like Norfolk Island and Lord Howe Island. This invaluable material, so much of it from remote or difficult to access areas, serves as a tremendous resource for present and future lichen studies. As the taxonomic problems in Parmeliaceae became resolved, he turned his attention to other groups, and as result, he has described many species from a wide range of genera. His current focus is the large family Physciaceae where he has compiled the generic accounts that serve as the starting tools for all researchers in this family. Currently he is working on a particularly tricky group, *Amandinea*.

Jack is held in the highest regard by the world lichenological community which has conferred several honours upon him, including Vice-Presidency of the International Association for Lichenology (IAL), a Festschrift or compendium of papers written by his colleagues, published

to commemorate his 60th birthday, the award of the IAL's Acharius Medal, and honorary life membership of the British Lichen Society, lichenology's peak professional body. His name is also commemorated in many species and genera of lichens.

He is renowned and respected throughout the world for always being ready to help. Most of his assistance tends to be in the form of confirming or conducting chemical analyses for others, but it also extends to conveying visitors on collecting trips, helping with copies of publications, or simply by encouragement or hospitality in his home or laboratory. For me, he has been a close friend, colleague and collaborator for 35 years. Some of my most pleasant times have been working on specimens in his old lab down in ANU Chemistry, where I would prepare the extracts and Jack would be spotting and running the *tlc* plates, and then we would share the excitement of the results. For all his scientific achievements though, Jack retains a simplicity that is truly special. When he was presented his Festschrift by Pat McCarthy and me, and this had been a

long project kept secret from him, he simply remarked "Geez, thanks fellas". He loves the company of good friends, and the strength of his professional collaborations is that they have been underpinned by sound friendships. He loves his footy (the Hawks), and he certainly respects the tradition of beer o'clock. Several times when we were working together in his lab, Jack would suddenly call stumps and head home, even though the next brilliant discovery seemed just minutes away. We would head home, and speculate over a beer about what was seemingly about to be discovered but had to wait for first thing next day.

It is now some 15 years since Jack retired from ANU's Chemistry Department. These days his grandchildren, his chooks and his vegetable patch compete for his time with lichens, but he remains as productive as ever, and a source of great support to his mates and colleagues. And he still loves get out in the bush and find new things.

There can surely be few contenders as worthy as Jack for this award.

Current affairs

Progress with the Decadal Plan for systematics

Kevin Thiele and Michelle Waycott
WA Herbarium; State Herbarium of South Australia

Three significant things have happened since our last update (in the March–June 2015 issue of this Newsletter) on the development of a Decadal Plan for systematics and taxonomy in Australasia. Firstly, we've made some substantial progress in drafting the document, largely through a number of "writing hacks" in which those of us directly involved blocked out a whole day in our diaries, stayed away from work, and wrote like crazy into a Google Docs document (we highly recommend this method for any too-busy group of people who actually want to get something done!). Secondly, we held an extremely useful and productive session on the Decadal Plan at the ASBS2015 meeting in Canberra (and benefited greatly from a very useful discussion forum on how to engage with politics and policy-makers held as part of that meeting). Thirdly, we've made a formal approach to the zoological community, through

the Council of Heads of Australian Faunal Collections and in a plenary talk at the Society of Systematic Biologists (SASB) 2015 meeting in Perth. Through these we've received broad support for the concept and process from right across our discipline.

As a result, we now have a much clearer idea of what we plan to do, what a Decadal Plan should be like and how it should be pitched, and how such a Plan should be best deployed. The Plan will be a bold, proud, visionary document, a statement of our achievements as a discipline and a community, an acknowledgment of our challenges and opportunities, and a roadmap for the future. Now we just need to figure out the details, and to write it.

The first step in the former will be to conduct a number of surveys across our community in order to gain an accurate snapshot of

capacity, constraints, trends, opportunities and options. The first survey will be essentially a repeat (in Australia) of the previous Surveys of Taxonomic Capacity conducted in 1973, 1992 and 2003–6 by the Australian Biological Resources Study (in New Zealand a survey along these lines has recently been completed by the Royal Society for their report on National Taxonomic Collections). A second survey will be specifically designed to collect ideas and thoughts on the Plan's roadmap; for this we will need engagement (and good ideas) from all members of this Society. A third survey will poll the users of our services, to determine the extent to which what we do is appreciated and valued, and how we could do better. Be warned and be prepared – 2016 will be a year of surveys!

As a start, and as a way to get you all thinking in preparation for the second survey, please have a think about where you'd like taxonomy and systematics to be in 2026. Please think in terms of what systems and processes you'd like to have in place, both to help us do our work and to help our users do theirs. The astronomers' wish in their first Decadal Plan was for the world's best radio telescope – and they got it (the Square Kilometre Array). What's the equivalent for biodiversity? What's our Next Big Thing, and what do we think will be hot, and cool (now there's a nice mixed metaphor), and hence attractive to our funders. To help get your thinking started, here's an initial, relatively unfiltered list of potential Next Big Things derived from our own ideas and from the ASBS2015 forum. Our task over the next few months will be to refine and restrict this, to settle on a few major proposals for the Roadmap, and to work out the funding and resourcing requirements to achieve our goals.

In 10 years time ...

- there will highly regarded, professional accreditation for practitioners in biosystematics (including taxonomy) along with clear industry standards.
- taxonomy and an understanding of biodiversity is built into critical early stages of developing management strategies for natural resources and conservation efforts including recognising biosecurity threats (e.g. high impact weeds), identifying resources for restoration and links to preserving local biodiversity for future generations.
- the task of fully discovering all our biodiversity is better understood and valued while still making significant progress towards its revelation.
- there will be a network of international researchers engaged in collaboration with Australasian researchers seeking to fully understand the origins and evolution of our biota appreciating its unique features.
- inspirational educational opportunities exist that inspires students of all ages to understand biosystematics and taxonomy leading to new generations of scientists desiring a career in the discipline.
- we will have numerous well trained graduates who are capable of acting as advocates for systematics and taxonomy as a foundational science.
- we will have an active, engaged, citizen science program that provides high quality images, to a central repository, supported by good quality meta-data leading to greater awareness of what is found where and when. Our discipline's practitioners will be valued for their expertise in identifying and providing context for observations.
- we have children and adults actively engaged in biodiscovery as individuals in the field and in silico.
- the work we do makes becoming a systematist aspirational.
- a well planned, exciting, informative and well supported community engagement strategy has led to the recognition of taxonomy and systematics as a foundational science.
- we have the data available to support quantitative decision making (as opposed to qualitative), including useful synthesis opportunities such as the State of the Environment report where our data is recognised as critical to 'building' the syntheses and there is recognition of the national effort and collaboration that leads to generating it.
- we will have a complete Flora/eFlora of Australia and New Zealand including identification keys, quality images and botanical illustration and supporting literature, supporting a national checklist of all Australasian organisms.
- we will have the dataset that describes the biodiversity of every 10x10 km grid in Australia and New Zealand, through surveys and consolidation of data and shared dynamic portals such as the ALA.
- we will complete a DNA reference library for all representative species in Australasia including family and genus level complete genomes, a national phylogeny of all organisms and exploratory analysis of adaptive trait data

- sets linked to taxonomic hierarchies.
 - have built a biogeographically relevant DNA tissuebank of Australasian plants, animals, fungi, algae and lichens.
 - we will have built new shared tools for the discipline to explore the Australasian biological diversity.
 - we will be able to refer to a taxonomic 'H-index' recognising the role of the authors of taxonomic descriptions in fields outside biosystematics.
 - our understanding of Australian and New Zealand biota will be measurably improved
- by liaising with indigenous cultures improving western science understanding of the plants and animals we study.
 - we will be recognised as a critical discipline to the ongoing efforts to understand the functioning and biological diversity of our world.
 - the efforts of the significant unpaid workforce that are passionate and committed to our discipline will be recognised by the wider community and valued in a way that supports their efforts.

Coming meetings

Late September date for ASBS 2016 in Alice Springs

We're hoping for a big contingent of enthusiastic plant systematists to invade Australia's centre for our first outback conference. We've settled on a date, the week beginning 26th September, to give as many people as possible the chance to attend. This is University common week. It should also be a great time to see the Centre at its best. If there are good winter rains to follow up good summer rains, it could be one of those rare, really good years.

More information will come via Facebook and the next issue, but we suggest you block out a few days either side of the allocated week if possible to get full value for the visit.

Travelling via the Stuart Highway starting in Adelaide is quite an experience and ideally would require one night on the road either camping or in a motel. For the latter we suggest an early booking in Glendambo or Coober Pedy. This might be a fun thing for groups.

The Conference Organising Committee



Fig. Top, Peter Jobson spruiking the attractions of the Alice.

Below, Michelle Waycott on behalf of the Adelaide/Northern Territory organising committee receiving Natalie Maras's remarkable baton from Brendan Lepschi of the Canberra Committees.

Ph. B. Barker,
M. Bayly



Milestones and significant events

A ceremony celebrating the contributions to Australasian plant taxonomy of Hansjörg and Marlies Eichler

On 2nd December 2015 at the end of the last day of presentations at the annual ASBS conference many of those attending took the 15 minute walk through CSIRO into the neighbouring Australian National Botanic Gardens on the slopes of Black Mountain to the Nancy Burbidge Memorial Amphitheatre (Fig. 1) for a ceremony paying tribute to Hansjörg and Marlies Eichler marked by the unveiling of a plaque in their names (Figs. 2, 3). Others came especially for the ceremony: notable were Barbara Briggs who drove down from Sydney to take make her important contribution to it, and Tina Offler, a former PhD student of Hansjörg's, who flew in from Newcastle.

Present at the hour long ceremony were many who had memories of Hansjörg and Marlies, particularly from Canberra but also from Adelaide and other parts of Australia (Fig. 6, 7). Notable were Hansjörg's students Richard (Dick) Schodde, Tina Offler, Tony Orchard and Bill Barker (Fig. 7). A number of other students (including Paul Wilson and Betsy Jackes) and close associates from the 1960s and 70s were unable to attend but expressed

their best wishes. Several plant systematists from Hansjörg and Marlies's generation around the country had been invited and also conveyed their warm wishes.

As immediate past President of ASBS, master of ceremonies Bill Barker welcomed everyone to the ceremony. He pointed out how fitting the site was for this ceremony. The audience was seated in an amphitheatre commemorating an esteemed friend and colleague Nancy Burbidge (Web ref. 1). Hansjörg had the highest regard for Nancy as a taxonomist, visionary and leader of Australian systematists. Its wider setting was also appropriate as it is not only a fine collection of native Australian plant species, but also a genuine scientific collection where as far as possible plantings are of known wild origin and associated with voucher herbarium specimens.

Celebrating the lives of both Eichlers is particularly important to ASBS. Hansjörg had been one of the leaders of Australian plant systematics who joined the well-attended Melbourne meeting that established ASBS in

1973. He felt it appropriate for the Society to be set up and run by the newer generation of taxonomists. It complemented the push for the national collaborative approach that saw established at the same time the Council of Heads of Australian Herbaria (in which he was heavily involved), ABRS and the *Flora of Australia*.

Hansjörg's substantial contributions to plant systematics, which had taxonomic, nomenclature, institutional and state and national aspects are well documented in tributes from colleagues around the world and within and outside plant systematics gathered together in our

Fig. 1. Nancy Burbidge's plaque and amphitheatre, Australian National Botanic Gardens with the Eichler ceremony audience.

Ph. M. Fagg





Fig. 2. Marlies and Hansjörg Eichler. Ph. A.S. George

Newsletter on his retirement by Barry Conn (1981) and at a commemorative ceremony in the State Herbarium of South Australia (Barker 1993, Schodde 1993), and subsequently in obituaries published by Enid Robertson (1993) and Tony Orchard (1999).

Marlies Eichler was Hansjörg's help-mate in both plant systematics and life. On a daily basis she did much exacting clerical and technical work in systematics for him, and following his death she found an extraordinary way to contribute to our science. The ASBS research fund "to support botanical systematic research by students" was first proposed in 1989 (Hewson & West 1989), with much of the early funding from the sale of items produced by the Canberra Chapter. Funds had risen to a modest \$2553 when Hansjörg's encouragement of young systematists led ASBS to posthumously name its research fund after him (Crisp 1994a). Shortly after (Crisp 1994b) Marlies made her first donation of \$10,000, exactly matching the sum deemed necessary before the Society could commence giving grants. It was not until 1997, however, that the Hansjörg Eichler Research Fund earnings were first utilised, with four grants to students of \$500 each, supported by a further donation of \$10,000 by Marlies

(Anon. 1997).

By the start of 2011 when Marlies passed away, the Research Fund had benefited hugely by her regular donations amounting to over \$290,000, which represented over 80% of donations received to that time (J. Clarkson, pers. comm.). The Society made her their first Life Member at its 1998 Annual General Meeting in Sydney. Seventeen years later, ASBS found itself the main beneficiary of her will, with a bequest of more than half a million dollars.

To date, as a result of the generosity of Marlies and other donors, about \$90,000 has been awarded to 64 recipients, almost all students. A number of these recipients were present in the audience (Fig. 4). While selection is made on the merit of the application, awards have been made widely amongst those eligible; we believe no-one has received two awards.

Flanked by the veiled plaque, Judy West, the first of four speakers, described her interaction with Hansjörg. Hansjörg had worked in the Australian National Herbarium as an honorary researcher following retirement as its head, a role which she took on a few years later. Hansjörg had suggested *Dodonaea* the group she adopted for her doctoral dissertation.



Fig. 3. The plaque dedicated at the ceremony in the Australian National Botanic Gardens on 2nd December 2015.

Ph. M. Bayly

In common with all the speakers, Judy had little regular interaction with Marlies, alluding to Murray Fagg as one who had seen a lot more of her than most present. Murray and Judy had assisted Marlies in dispersing Hansjörg's large personal library following his death.

Fittingly at this ceremony, Judy announced that the Board of the Australian National Botanic Gardens was very supportive of the erection of an Honour Wall to celebrate the contributions of plant systematists. It would extend from the

south end of the Burbidge Amphitheatre. She had discussed the general concept with ASBS Council at their recent meeting. The Society would have a prime role in developing this approach to honouring our systematists.

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Fig. 4. Eichler Research Grant recipients in attendance. From left, Tim Collins, Charles Foster, Janet Gagul, Marco Duretto (one of the four first recipients of a grant), Melodina Fabillo, Ben Anderson, James Clugston, Todd McLay, Matt Renner, with new ASBS President Darren Crayn.

Ph. M. Bayly



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Memories of Hansjörg Eichler

Tony Orchard

I was one of a mere handful of taxonomy students fortunate enough to be in the right place at the right time, and thus to have had the privilege of being supervised during my post-graduate studies by Dr Hansjörg Eichler.

Hansjörg had arrived in Adelaide in 1955 (see Orchard, 1995 for a detailed obituary) to take up the daunting task of turning a mishmash of collections in a very poor state of preservation into a State Herbarium. Over the next 10 years he drew on his considerable experience and training in some of the best European herbaria to assemble the necessary infrastructure for a first rate herbarium, building a library, establishing exacting operating procedures, assembling a staff of botanists and technicians, and building links with the wider botanical community. In 1965 he achieved a major milestone, with the building of a state of the art purpose-built herbarium building in the Adelaide Botanic Gardens (since demolished in a monumental demonstration of bureaucratic insanity).

At this time taxonomy had a very low profile in the local scientific community. At the nearby Adelaide University, taxonomy was taught as a unit of a broad undergraduate degree course



Fig. 5. Judy West at the podium. Ph. M. Bayly

in botany by Constance Eardley, a remarkable woman in her own right (see Cook, 2013), but was not considered “real science” within the Botany Department. Along with a small number of others (including Bill Barker) I was inspired by Con to consider post-graduate studies in taxonomy. However, there was a problem. While Con was perfectly capable of teaching taxonomy at the undergraduate level, she was diffident about taking on postgraduates. Fortunately, Hansjörg had been appointed an honorary lecturer in botany at Adelaide University in 1965 with just this problem in mind, so I was referred to Hansjörg as a potential B. Sc. Honours student at the end of 1966.

To a young student with a brand new B.Sc. on which the ink was barely dry, Hansjörg was a formidable personage. With his usual attention to detail and view to the long term, he did two things. First he offered me vacation employment in the herbarium as a junior technician, mounting, sorting and filing specimens, and secondly (as part of the employment) a trial at taxonomic research. I was installed in his laboratory with a formidable



Fig. 6. Most of the audience at the Eichler celebration seated around the Nancy Burbidge Amphitheatre. (From left) front row: Juliet Wege, Peter Weston, Lalita Simpson, Gill Brown, Katharina Schulte, Karen Muscat, Murray Henwood; second row: Kelly Shepherd, Robyn Barker, John Clarkson, Leon Perrie, Jen Tate, Peter Wilson, Isobel Crawford, Miguel de Salas, James Clugston, Rachael Fowler, Jessie Knott, Ed Biffin, Tanya Scharaschin, Matt

pile of *Zygophyllum* specimens all bearing the same name, a dissecting microscope, and instruments. My task, over a week, was to work through the specimens, soaking up one flower of each specimen, dissecting it, laying out all the parts onto gummed paper, and make notes of the size and number of the parts. If I was still there at the end of a week, he considered I had the patience (or doggedness) necessary to undertake taxonomic research, and he would take me on as an Honours student. I lasted the week, and was accepted as his student, although not before he had pointed out that among the ca 100+ specimens I had dissected, all had 4-merous flowers, except one, which was 5-merous. I had missed it! That was a very salutary lesson in the rigour and concentration needed for comparative morphology, and the first of many lessons learnt from this erudite man.

I completed my Honours degree under the joint supervision of Con Eardley (who looked after the Departmental side of things – coursework, essays, seminars, etc) and Hansjörg (who looked after the taxonomy and nomenclatural aspects). Between them they steered me to a First Class Honours degree, which raised eyebrows in the Botany Department, where taxonomy was still looked at askance, but it inspired me to forge ahead with a Ph.D. Although offered a place at another university, I fortunately chose to remain in Adelaide, under Hansjörg's supervision, and he steered me towards Haloragaceae. This rather nondescript family with tiny wind-pollinated flowers was widespread and speciose in Australia, but very poorly collected. However, from the scant collections available it was clear that it offered great opportunities for new discoveries and reworking of its taxonomy.



Buy's; rear seated row: Tim Collins, Peter Jobson, Todd McLay, Sarah Matthews, Matt Baker (hidden), Ilse Breitwieser, Ailsa Holland, Nigel Fechner, Ben Anderson, Mohamed Owis, Melodina Fabillo, Janet Gagul; rear, standing: Brendan Lepschi, Gintaras Kantvilas, Rosemary Purdie, Jeremy Bruhl; far rear, standing: Dan Murphy, David Cantrill.

Ph. M. Bayly

One of my first tasks was to assemble more numerous and better curated specimens for study. Although completely inexperienced in fieldwork, I planned an ambitious expedition over several weeks into northern South Australia and southern Northern Territory. This was before the days of OH&S, 4WD driver training, and such-like bureaucratic restraints. I was provided with an early Nissan Patrol, an equally naive companion (Joe Weber, a botanist at AD), 6 weeks tinned food, and pointed northwards, in the middle of one of the wettest summers on record. Part of the story of that expedition was told in an earlier *ASBS Newsletter* (Nelson, 2012). We should have realised that things were not going as planned when we found we had to drive along the railway near Oodnadatta because the road was washed out, and a day or two later when we got seriously bogged in the middle of the (then unsealed) Stuart Highway near the NT border.

The highlight (or lowlight) of the expedition came in the Simpson Desert, when the results of a week's collecting, drying in presses around a large campfire, caught alight, and we were left with a pile of ashes and bent buckles. On our return to Adelaide Hansjörg's only comment on the incident was "the presses will need to be replaced". Shortly afterwards he organised private funding for a major expedition to the Esperance area in Western Australia, where large scale development of the sandplains for farming was about to result in loss of thousands of hectares of largely botanically unexplored country. I was invited to be part of this expedition, comprising Hansjörg, Nik Donner and Eric Jackson, joined from PERTH by Paul Wilson. Over several weeks we made large numbers of collections, often hours ahead of the vegetation being plowed under by large caterpillar tractors. The richness of the flora made a lasting impression on a young

botanist, who incidentally collected large numbers of Haloragaceae towards his thesis. It was particularly instructive to see Hansjörg collecting tiny annuals (mainly *Hydrocotyle* species), laying them out individually in strips of toilet paper, so that each plant even if only of two leaves and a single umbel of tiny flowers, was readily examinable. Hansjörg always insisted on taking his press into the field and pressing each plant as it was collected. He disapproved of throwing the day's gatherings into a plastic bag and sorting it all out later. The result was superb specimens which are still a pleasure to work with.

Hansjörg had assembled a substantial taxonomic library, and instilled in his students a strong instinct for literature research. This library is now largely at CANB, where it enhances an already comprehensive collection which he helped build during his years as Director (1973–81) after leaving Adelaide. His library, and that of the Botanic Gardens and herbarium in Adelaide, underpinned his many years on the (then) Spermatophyta Committee, and the General Committee for Nomenclature. Hansjörg's persistence and (self-confessed) pedantry, broad knowledge of plants, and

exceptional knowledge of the nomenclatural Code made him a valuable member of these international nomenclatural bodies, and he instilled in his students a matching appreciation of the necessity for careful nomenclatural work to complement their taxonomic research. He nominated me to the General Committee in 1981, and I was privileged to be invited to take his place on the Spermatophyta Committee on his death in 1992.

While I was a postgraduate student in Adelaide, planning was underway for the establishment of the Australian Biological Resources Study, and its major planned output, a new Flora of Australia. Hansjörg was heavily involved in the debate on the new Flora, whether it was to be synoptic or to contain full synonymies and descriptions, whether it was to be status quo, or fully revisional, whether it was to be published in fascicles or in complete volumes, and what systematic order was to be adopted from the several competing models then available. Hansjörg involved his students in these discussions, and explained the consequences of each choice. The ASBS was also established about this time, again with Hansjörg's involvement, and he involved me

Fig. 7. The ceremony begins. From left to right: back row, Frank Zich, Kirsten Cowley, Jo Palmer, Annabel Wheeler; front row, Katharina Schulte, Karen Muscat, Murray Henwood, Darren Crayn, Tina Offler, Dick Schodde, Barbara Briggs, Tony Orchard.



in other taxonomic projects and discussion forums, including the Botany Subcommittee of ANZAAS. It was truly an exciting time to be a young taxonomist, as for the first time the previously isolated taxonomic institutions in Australia began to come together in joint ventures, laying the foundations for Australia-wide, rather than State-based scientific studies. This spirit of national cooperation was physically manifested in the establishment and strengthening of the Committee (later Council) of Heads of Australian Herbaria in which he also played a major role.

Hansjörg lived for his science, and tried to impart his enthusiasm to his students. In this he largely succeeded. Most went on to make successful careers in taxonomic botany (Dick Schodde was a major exception, but even he moved into taxonomic ornithology with outstanding success). Hansjörg was a hard task master but his persistence paid off for us, his taxonomic children.

Perhaps I could finish with an observation that epitomises his attention to detail. When I (and I suspect others) came to write up our theses we were confident of the robustness of our science, and fairly relaxed about the way we had argued our cases. Imagine my dismay, as someone who had always done well in English at school, to be told by a native German-speaker that my English was defective! It was no use to argue, for example, that split infinitives were now more or less acceptable. Hansjörg had learned his English from textbooks. With his usual persistence and attention to detail, he had absorbed the rules of English Grammar, and he made sure that we applied them!

It is appropriate that ASBS has adopted Hansjörg Eichler as its talisman. He was a passionate, talented and influential figure in Australian botany, whose legacy will live on in the institutions he managed, the organisations he fostered, and the students he mentored.

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The Eichlers in Australian systematic botany

Richard Schodde

Whenever I recall the enormous contributions that Hansjörg and Marlies Eichler made to Australian systematic botany, the first thought that comes to mind is teamwork – constant, single-minded teamwork. Hansjörg was the leader and Marlies the follower, in a marriage that was rather withdrawn and childless. Yet the devotion and support that they showed to one another through their work for Hansjörg's science reveals the strength of their relationship. Overt signs of this are in Marlies' work as Hansjörg's private secretary and scientific assistant. Covert evidence comes from her stoicism on regular collecting camps on vacation in appalling summer heat in the South Australian mallee, and her fierce defence of Hansjörg against his early critics in Adelaide.

Appointed as Keeper of the newly established State Herbarium of South Australia in late 1955, Hansjörg almost immediately fell out with his superior, Noel Lothian, Director of the Adelaide Botanic Gardens. I saw all this at first hand as one of the very first summer vacation students working in the herbarium in January-February 1956. Hansjörg never handled petty



Fig. 8. Bill Barker welcomes Dick Schodde to the podium.
Ph. J. Bruhl

niggling well, and Lothian used this to frustrate and upset him and his plans whenever he could. Hansjörg had no car in those first years and would bicycle to work from home at Fullarton in summer. He was a strange sight in very short shorts and sandals with socks, riding an all-black European bicycle with flat handle bars. I lived further up Fullarton Road at Netherby and would often ride home with him one evening, coping blasts about what Lothian was doing or being told I needed more care and patience in my work. Marlies probably got much worse at home. It was not until the end of the 1950s that Hansjörg was able to start building bridges with other herbaria, particularly Selwyn Everist and Stan Blake in Brisbane, and with the University of Adelaide through shared students with Con Eardley. From then on he began to cope with the Australian way of doing things and blossomed.

Backed by Marlies, Hansjörg Eichler was a towering, if unassuming developer of systematic botany in Australia. Not just a publisher of taxonomic information, he was a builder of collections and herbaria, without

which there can be no systematic research in the first place. He also led efforts to bring a collegiate culture to his field, resulting ultimately in the production of a modern Flora of Australia. Big picture and pedantic detail – the Eichler intellect was across both. Lastly, there is his mentoring of his students: exacting in its scholarship and fully rounded in its scope. Not just method and technology, but also bibliographic history and nomenclature, were part of the course. For revisionary work, I was told to learn all synonyms and their references off-by-heart, something that is unheard of in vertebrate systematics. Yet what I believe gained respect most from his students, and set the clearest example, was the underlying integrity and dedication in his approach. It was dispensed with both affection and criticism that was, as a father's, unfailingly well-intended. So we, his students and colleagues, are, in a sense, Hansjörg's and Marlies' children – and I hope they are as proud of us as we are of them.

Reflections

Barbara Briggs

It is so good that ASBS and the Australian National Botanic Garden have recognised in this way the huge contribution that Hansjörg and Marlies Eichler made to Australian systematic botany. It was a privilege to be part of it. Speaker after speaker mentioned, with humour and affection, Hansjörg's role in mentoring them as young systematists. They had then gone on to senior positions and had mentored further generations of botanists. Also many who were there had received grants from the Eichler Research Fund that Marlies made possible.

That brilliant Canberra afternoon was a wonderful opportunity to see again so many colleagues, including some I had not seen for decades. Long after I first met Hansjörg, I realised that I had probably 'stepped on his turf' in taking up my first botanical project, on Australia's alpine *Ranunculus* species. He had studied the species of the New Guinea mountains but selflessly stood aside – not mentioning his own interests – and left the area to me. I was very glad to have an opportunity to acknowledge that I owe him a special debt for this. We have all benefitted from their legacy.

Fig. 9. Barbara Briggs unveiling the plaque.

Ph. M. Fagg



The plaque unveiled

On paying her tribute Barbara, with great aplomb, lifted the veil to reveal the plaque dedicated to Hansjörg and Marlies (Fig. 9).

The plaque will be placed temporarily by Gardens staff alongside the Burbidge Amphitheatre, with the potential to move it to a more appropriate position when the Honour

Wall is constructed and the approach to its use established.

Those gathered adjourned to the Crosby Morrison rooms nearby to reflect on a great celebration of two heroes of plant systematics in a wonderful and appropriate setting.

Bill Barker

News

News from the West

If the move from the old Western Australian Herbarium building to a new facility in 2010–2011 represented the end of an era, then we seem to have reached the end of another. Bruce Maslin has officially retired after an astonishing 48 years of public service, the majority of which was dedicated to *Acacia* taxonomy and conservation. In retirement, Bruce will be spending a great deal of time in south-east Asia, dealing with the region's *Acacia s. lat* taxonomy and nomenclature. He will remain an Honorary Research Associate of the Western Australian Herbarium.

Kevin Thiele has resigned from his position as Curator of the Western Australian Herbarium (effective 18 December 2015) although will similarly remain affiliated as an Honorary Research Associate. Throughout his nine years in the job, he has been a force to be reckoned with, challenging old ways of thinking, promoting innovation, and championing the importance of taxonomy, and of the Herbarium, to biodiversity conservation in Western Australia. We wish him all the best in his future endeavours.

Suffice to say, the position of Curator represents an outstanding opportunity to lead a great team of committed people, with all of the excitement and challenges of working in a global biodiversity hotspot. The job has been advertised (with applications closing on 21 January) and the recruitment process will continue despite the recruitment freeze that applies to Western Australian government sector agencies until 30 June 2016. An Acting Curator will be appointed for the first half of 2016, with the aim of filling the position at the start of July. All queries can be directed to David Coates.

And finally, Beng Siew Mahon has also retired. She was the sole librarian at the old Herbarium building and heavily involved with *Nuytsia* from 2002 to 2012, firstly as an Editorial Assistant and later as Managing Editor. I for one am left wondering how I'm going to find my way around the library without her.

Juliet Wege,
Western Australian Herbarium

News from South Australia

The South Australian Government is improving the efficiency of its “Oban” public transport system to remodel the roads outside the Botanic Gardens administration and State Herbarium buildings. This will bring the main road much closer to both.

At the same time the Environment Department is moving many of the environmental science groups out of the State Herbarium's building, consolidating all city personnel in the one central city building. Rather than releasing the space occupied at one time by more than 30 personnel back to the State Herbarium, the space vacated (the open space which was originally envisaged for expansion of the State Herbarium collection) is to be occupied immediately by a large Oban project team. This is intended as a temporary two year arrangement with a possibility of an extension of a further year. By that time it is anticipated that the current five vault areas will be bursting at the seams and needing the vacated space.

The Botanic Gardens and State Herbarium has experienced a major change at the top with the completion of current Director Stephen Forbes's term of office. One of the roles of interim Director, cultural advocate Greg Mackie, is finding a new director through advertising internationally.

Australia Day Honours

Congratulations to David Mabberley, Neville Marchant and Philippa Nikulinsky who were all awarded Members of the Order of Australia (AM) in the 2016 Honours list. David and Neville received recognition for, amongst other subjects, their services to plant taxonomy, while Philippa's award was for her service to the visual arts as a botanical painter and illustrator.

Web ref.: <https://www.gg.gov.au/australian-honours-and-awards/australian-honours-lists>

Researching MEL's foreign holdings

Catherine Gallagher of the Collections Branch at MEL has won a Melbourne Friends' scholarship to travel to Berlin to research MEL's foreign collection and to attend the 31st Annual Meeting of the Society for the Preservation of Natural History Collections (Web ref.). This research trip will allow her to investigate current tools and technologies in curatorial practice as well as gain a more detailed understanding as to which parts of MEL's foreign collection are likely to contain significant material.

Web ref.: <http://www.rbg.vic.gov.au/news/annual-scholarship-recipients-announced>

Nuytsia issue celebrating 50 years of Kings Park

The latest issue of *Nuytsia*, volume 26, published in November 2015 (Web ref.), is a special issue celebrating the 50th anniversary of the Western Australian Botanic Garden, usually just referred to as Kings Park. The anniversary is recognised by the publication of 50 new species from Western Australia. There is a relatively brief history of the garden together with a background to collections in the Kimberley, since thirty eight of the new species come from there. There are seven multi-authored papers

describing the fifty species, all of them with Russell Barrett as one of the authors and five of them with his brother Matt as one of the authors. A number of species have been named for former Kings Park staff, amongst them *Aphyllodium beardii* for John Beard, *Calectasia demarzii* for Herbert Demarz, *Hybanthus bennettiae* for Eleanor Bennett, *Lepidosperma fairallianum* for Arthur and Pauline Fairall, *L. hopperi* for Steve Hopper and *L. oldhamii* for John Oldham. It is also pleasing to see that one of the species, *Tribulopsis marliesiae*, has been named for Marlies Eichler "for her support of her husband Hansjörg Eichler ... and her generous support of the Australasian Systematic Botany Society".

Web ref.: <https://florabase.dpaw.wa.gov.au/mytsia/>

New Zealand enquiry into taxonomy – report released

The Royal Society of New Zealand's expert panel which reviewed all of New Zealand's taxonomic collections has released its report (Web ref.). It calls for more resources and a coordinated approach to safeguard and grow New Zealand's taxonomic collections; the collections are essential for supporting many aspects of New Zealand life from economic growth to human health. This report parallels the decadal plan being developed for Australasian biosystematics (see p. 43 in this issue) and was the subject of Ilse Breitwieser's talk at the ASBS meeting in Canberra.

Web ref.: www.royalsociety.org.nz/taxonomy

Australian Museum under pressure

The staff of the Australian Museum was reduced by c. 50 by a round of voluntary and forced redundancies in November 2015 (Web ref. 1). Reports vary depending on the source as to just what percentage of the work force

Australasian Systematic Botany Society Inc.

Australian Conservation Taxonomy Award

Applications close on May 22nd 2016

We invite applications from members.

**For eligibility and other information see the ASBS website
or contact Vice-President Dan Murphy (address inside front cover)**

this represents and it is also unclear just which positions were involved. The Museum lost a number of researchers in similar cuts in 2013 and that would now seem to be reflecting in its research output with only 52 papers published in 2015. This compares with 95 in 2014, 112 in 2013, 120 in 2012 and 61 in 2011 (Web ref. 2). Interestingly the July 2014 announcement that the NSW Government was to spend \$7.2 million to transform the museum only mentioned the new entrance, new exhibition gallery and new rooftop dining facilities and shops (Web ref.

3), with no mention of any better housing or curation for the “more than 18 million objects” for which they are responsible.

Web references

- 1: <http://www.smh.com.au/nsw/australian-museum-guts-staff-putting-priceless-artefacts-at-risk-union-20151112-gkxac0.html>
- 2: <http://australianmuseum.net.au/publicationfinder?page=15>
- 3: <http://australianmuseum.net.au/media/museum-transformation>

Miscellanea

Making grant proposals public

Congratulations to ASBS member Endymion Cooper for winning a Marie Skłodowska-Curie Fellowship which he took up in June 2015, based at Queen Mary University of London. These European fellowships are very competitive and Endymion has generously shared his experiences of the application process (Web ref. 1). Furthermore he has provided a copy of his successful application (Cooper 2015) as a source of information for others who might be interested in applying.

In providing this information Endymion has joined others who have made their grant proposals open access (Web ref. 2). “Their reasons for doing so are varied... but part of the common justification is a general interest in opening up science so that all stages of the process can benefit from better interaction and communication, and part of it is to provide examples for younger scientists writing grants.” [from web page].

This page should be of interest to anyone having to apply for funding.

Endymion is also editing the special issue of Australian Systematic Botany, *Building our Botanical Capital*, based on the Canberra ASBS meeting.

References

- Cooper, E. (2015). FRAXIFAM: Reconstructing gene family evolution in the ash genus (*Fraxinus*). <https://dx.doi.org/10.6084/m9.figshare.1456169>
- Web ref. 1: <https://decodingplants.wordpress.com/2015/06/26/winning-a-marie-sklodowska-curie-fellowship/>
- Web ref. 2: <http://jabberwocky.weecology.org/2012/08/10/a-list-of-publicly-available-grant-proposals-in-the-biological-sciences/>

Bush tobacco culture revealed by Western Desert Aborigines

An article by Nicolas Rothwell in the *Saturday Australian* of November 28th 2015 (Web ref.; cf. Symon 2005)) foreshadowed the disappearance of bush tobacco from the aboriginal culture of the Western Deserts and raised a number of questions which are still in need of investigation. The bush tobacco concerned, probably *N. gossei*, is chewed rather than smoked and superior populations are recognised as occurring in particular locations. These superior stands are cared for (?farmed) and, as happened on a State Herbarium field trip to the Pitjantjatjara lands in 1978 (W. Barker, pers. observ.), the plants widely traded or taken as gifts when visiting other communities. In accounting for the rarity of its depiction in desert art, Rothwell contemplates the lack of any role for bush tobacco in desert law, the lack of any increase in rituals and the fact that it is nobody's totem¹. He also muses on the rarity of hallucinogenic plants on the Australian continent.

References

- Symon, D. (2005). Native tobaccos (Solanaceae: *Nicotiana* spp.) in Australia and their use by Aboriginal peoples. *The Beagle: Records of the Museums and Art Galleries of the Northern Territory* 21:1–10.
- Symon, D. & Jusaitis, M. (2007). *Sturt pea, a most splendid plant*. Botanic Gardens & State Herbarium, Dept for Environment & Heritage, Adelaide.

¹ The late David Symon (pers.comm.; cf. Symon & Jusaitis 2007) was struck by the similar paucity in Aboriginal art of depiction of the striking Sturt pea *Swainsona formosa*.

Web ref. <http://www.theaustralian.com.au/arts/review/bush-tobacco-culture-revealed-by-western-desert-aborigines/news-story/38b508289846695ecd5a19b4bba0be6>

Many tropical plant species in herbaria wrongly determined

This paper has been circulated amongst a number of people in Australian herbaria and its content comes as no surprise. It raises yet again concerns about the quality of the data being uploaded into regional and global databases. This time it surrounds the correct identity of the specimens being databased; in this study it was found that 58% of the 4500 specimens of African gingers (*Aframomum*) sampled from 40 herbaria in 21 countries were wrongly identified. A study involving *Dipterocarps* and *Ipomoea* showed similar results. The authors conclude that:

Specimen data have huge potential to address global environmental problems, but the rate of increase in natural history collections across the world has greatly outpaced the ability to process, evaluate and name them correctly.

But it's not just the rate of increase in collections which is to blame – those herbaria which are not having an increase in collections are surely suffering the same problem and the problem

is due to a breakdown in normal processes. There are simply not enough trained curatorial staff with the time to devote to revisiting and annotating existing specimens each time a new paper is published or a name is changed in addition to attaining correct identifications for new specimens.

Rod Page has further issues with the paper (Web ref.).

Reference

Goodwin ZA, Harris DJ, Filer D, Wood JR & Scotland RW (2015). Widespread mistaken identity in tropical plant collections. *Current Biology* 25: R1066-7. [http://www.cell.com/current-biology/fulltext/S0960-9822\(15\)01228-2](http://www.cell.com/current-biology/fulltext/S0960-9822(15)01228-2)

Web ref. <http://iphylo.blogspot.com.au/2015/11/comments-on-mistaken-identity-in.html>

Herbarium contact in Islamabad, Pakistan

Dr Amir Sultan (Fig. 1) is the Curator at RAW, the National Herbarium at National Agricultural Research Centre, Islamabad, Pakistan. Amir completed his Ph.D. at Massey University in Palmerston North, New Zealand in 2014, working with Jen Tate and Alastair Robertson on the systematics and ecology of *Korthalsella* (Viscaceae) mistletoes. He is keen to maintain linkages with the Australasian Systematic Botany Society and welcomes enquiries about exchanges or collaborations.

Contact details for the herbarium are listed in *Index Herbariorum* or you can email Amir on amirsultan_2000@yahoo.com.

More talking plants

Tim Entwisle has been back on the ABC's Radio National with his second summer edition of *Talking Plants* (Web ref.). While the series has just finished and Tim will resume his normal blogging, the programs are downloadable through the website.

Tim will continue to be heard occasionally on Radio National on a program, primarily about the weather, called *In Season*.

Web ref.: <http://talkingplants.blogspot.com.au/>



Fig. 1. Dr Amir Sultan, Curator at RAW, the National Herbarium at National Agricultural Research Centre, Islamabad, Pakistan. (Akaroa Harbour, New Zealand in the background.)

A glut of corpse flowers

The Royal Botanic Gardens in Melbourne has had three of their *Amorphophallus titanum* plants flower in 2012, 2013 and 2015 (Web ref. 1). Now it is the turn of Adelaide which experienced a flowering at the Mt Lofty Botanic Gardens during the Christmas-New Year break, with another about to flower in the Adelaide Botanic Gardens about now (late Jan.). The number of people who, on a day over 35°C, were willing to walk some distance and wait for up to one and a half hours to view the flower

at the Mt Lofty garden is quite staggering. It is expected that the Adelaide flower will be of similar interest, although here there is only a short walk and the conditions are presently cooler.

Web references

- 1: http://www.rbg.vic.gov.au/documents/Titan_Arum_blooming_media_release_14_March_FINAL.pdf
- 2: http://www.environment.sa.gov.au/botanicgardens/Whats_on/News_Events_Listing/160125-second-corpse-flower-for-adelaide

ABRS report

Staff updates

Alice Wells (fauna team) retired in December 2015 and Pat McCarthy will be retiring in late January. Both will be greatly missed. Thomas Wallenius joined the team in January for 3 months to assist with the *Australian Flora Directory*.

It has been announced that Dr Judy West has now been appointed as Assistant Secretary for Parks Island and Biodiversity Science Branch and Executive Director of Australian National Botanic Gardens commencing from 31 March 2016. The ABRS welcomes back Judy as the Branch Head for our section.

Flora of Australia and the Australasian eFlora platform

A platform prototype was developed to enable review of appropriate content and functionality for creating, editing, attributing and delivering content through the eFlora platform. A testing program was undertaken from August–October 2015 involving representatives of state and national herbaria. Feedback on platform design was sought separately, through a survey coordinated by Kevin Thiele involving ca. 60 participants including Flora users and managers across Australia. Feedback received through these testing programs is greatly appreciated and will be used to determine agreed priorities for further development of the platform, to ensure the final product provides appropriate collaborative research infrastructure for Australian botanists.

Grants

The 2016–2017 Research and Capacity

Building grants rounds, under the National Taxonomy Research Grant Program (NTRGP), closed on 28 October 2015. The ABRS expects to notify applicants of the outcomes of the grant process in late January 2016. More information about the grants is available online (Web ref. 1).

Bush Blitz

Recent expeditions: November 2015: Oxley Wild Rivers National Park in New South Wales. The Oxley Wild Rivers Bush Blitz involved collaboration between botanists from the Royal Botanic Gardens and University of New England, National Parks rangers, and staff from the Australian National Botanic Gardens Living Collections team. The team collected plant material from more than 15 rare and significant species, including *Leionema* sp. aff. *gracile* and *Prostanthera* sp. aff. *howelliae* – two local endemics that were not previously in *ex situ* cultivation or seed banks.

Upcoming planned expeditions include: February 2016: Bruny Island and South West Tasmania National Park, Tasmania.

The 2014–15 Bush Blitz taxonomy grants round closed on 18 December 2015. The ABRS expects to notify applicants of the outcomes of this process in mid February 2016. More information about the taxonomy grant program is available on-line (Web ref. 2).

Web references

1. www.environment.gov.au/science/abrs/grants/research-grants
2. www.bushblitz.org.au

Zoe Knapp
ABRS, January 2016

Obituaries

Vale Alison McCusker OAM

13 September 1933 – 18 December 2015

Barbara Briggs

National Herbarium of New South Wales

Alison McCusker was the first Director of flora programs when the Australian Biological Resources Study (ABRS) was established and had a very significant role in establishing the *Flora of Australia*. But her career covered much more than that. Whether she was teaching at the University of Ghana in west Africa, encouraging research in crop plants in developing countries, organising proposals for World Heritage listing, or planning the *Flora of Australia* in Canberra, Alison always made a huge contribution.

Alison was born in Tocumwal, a town in southwestern NSW that was an important railway junction on the Sydney – Melbourne rail line. She was the older of two daughters of Neale McCusker and Mary Irene (nee Magwick). Neale had started work for the NSW Railways as a junior porter at the small town of Byrock; by study and seeking opportunities, he had advanced to be a stationmaster. Ability and determination saw him later progress to be the NSW Commissioner for Railways. His vision and effective management were imparted to both his daughters. The younger, Jill, became a notable expert in the health use and consequences of nuclear radiation, Director of the South Australian Radiation Protection Division of the Environment Protection Authority, and was a commissioner of the Royal Commission

into the British Nuclear Tests at Maralinga and elsewhere.

Alison's education was at St George Girls High School, followed by a science degree at the University of Sydney where she became a post graduate student and teaching fellow, researching chromosomes of Australian Ericaceae (*Leucopogon* and *Astroloma* species). Next was to the University of New

England as a lecturer in botany. She moved overseas in 1961, joining the botany department of the University of Ghana in Accra, west Africa. About 1963 to 1974 saw her as Associate Professor and head of the Department of Botany at the University of Dar es Salaam, Tanzania. There she completed her PhD, studying the 'knee roots' that allow mangroves to thrive rooted in oxygen-deficient mud. It was a formative time for the universities; both had just received independent status but education levels

of students were very variable and resources were limited. Her high levels of leadership and initiative were essential for work in these developing universities and developing countries. Since university education was a scarce commodity, many of her students rose quickly to high public office. After more than ten years in tropical Africa, health issues encouraged her return to Australia.



Fig. 1. Alison McCusker, undated studio photo.

Ph. ex Kwodjo and Leah Afiabo

In Ghana, Alison fostered a Ghanaian boy, Kwodjo, and raised him from four years age to adulthood, with the encouragement of his own family. Kwodjo and his wife Leah (daughter of botanist Bryan Barlow, noted for his research on Casuarinaceae and mistletoes) and their children have kept in touch with his family in Ghana and – with Alison – visited often.

Alison's link with Ghana continued throughout her life as she became patron of the Ghana Australia Association and attended its meetings in Canberra.

Alison's return to Australia was at an auspicious time. For decades there had been discussion about the need for a modern inventory and account of Australia's plants, a *Flora of Australia*. The only Australia-wide description of our species, by British botanist George Bentham, was almost 100 years out of date. There were some state-based floras, but nothing comprehensive and nation-wide. A modern account, pulling together the results of research, was needed so that plants could be identified and knowledge about them made available for biodiversity management. There was similar need for information on fauna. At last, a start was made by establishing ABRs within the Commonwealth Department of Science, with Alison heading the Flora Section from about 1975.

Her organisational skills were much needed in coordinating work by botanists Australia-wide, planning the whole project and developing suitable formats and standards. Alex George joined her at ABRs as the first Editor of the *Flora*. The first

volume was published in 1981, launched at the 13th International Botanical Congress in Sydney, the first time such a congress met in the southern hemisphere. By then Alison was Acting Director of the Bureau of Flora and Fauna of ABRs. Her name is not especially prominent in the early volumes but, with the first Editor Alex George and Paul Wilson, she did a great deal to turn the *Flora* from a hopeful concept to a viable project.

Since then, ABRs has gone on to publish some 35 *Flora* volumes following the plan determined under her supervision, as well as books and on-line resources on plant names, mosses, lichens, fungi and algae. Now the *Flora* is transitioning to become an online eFlora, with live links to nation-wide databases of plant names and specimen data, but the decisions on content made in Alison's time are still very relevant.

Meanwhile Alison's responsibilities widened; she became Assistant Secretary of the Commonwealth Department of the Environment Sport and Territories, heading the Environment Strategy Division at a time when there was much activity to recognise heritage values. Rainforests in north Queensland were among many areas successfully proposed for World Heritage Listing.

Around 1987 Alison moved to Rome and took on



Fig. 2. Alison's graduation: receiving her PhD certificate from then Tanzanian President, Julius Nyerere.

Ph. ex Kwodjo and Leah Afiabo

world-wide responsibilities as Deputy Director of the International Plant Genetic Resources Institute, a branch of the United Nations Food and Agriculture Organisation. The Institute had nine research centres in developing countries in a global effort to conserve genetic material of important crop plants. She coordinated the activities of a great range of researchers on varied crops from many parts of the world. This involved extensive travel to advise and encourage researchers maintaining crop genetic diversity in seed banks and living collections. Such stores of crop diversity – gene banks – are the basis for breeding programs to develop disease-resistant crops for the future. She was staffing a display on the work of the Institute at the Earth Summit in Rio in 1992 when she noticed the familiar face of the man standing next to her – Fidel Castro. After leaving the Institute in 1994 she returned to have a major role in preparing a report to FAO in 1996, '*State of the World's Plant Genetic Resources*'. That involved extensive research and brought together information from 154 countries and 400 gene banks on the state of resources and needs in conservation, utilization and training. Since 1994 Alison was a Voluntary Associate Scientist, again at ABRS in Canberra editing and writing parts of further *Flora* volumes,

contributing several sections to the first of the Poaceae volumes and the second edition of volume 1. In 2009 Alison was awarded an OAM, in recognition of her service to science through 'the cataloguing of the Australian flora' in the *Flora of Australia*.

Sadly in recent years Alison's health was affected by a degree of dementia and then by a severe stroke. In her room in a retirement village shortly before her death, on the shelves were the long line of volumes of the *Flora* and a photo of Nancy Burbidge who had done so much to advocate for its establishment.

In her student days Alison was active in athletics, quite a sprinter. Later she became an expert dressmaker, often wearing smart tailored suits of her own making. She attended Wesley Uniting Church, Forrest, where she was an Elder for many years. She was greatly fulfilled by seeing Kwodjo's development and his young family growing up.

Alison is survived by her sister Jill Fitch and by Kwodjo, his wife Leah and their three children, Bensah, Olivia and Henry. Her legacy is also in former students she inspired, areas protected by World Heritage listing, resources for crop security for the future, but most of all the *Flora of Australia*.

Alison McCusker and the *Flora of Australia*

Alex George

'Four Gables', 18 Barclay Road, Kardinya, W.A. 6163

Alison McCusker was an early appointment to the Australian Biological Resources Study which was established as an interim program by the Whitlam Federal Government in 1973. She was appointed to provide administrative support for the program which was then mainly a granting body. Momentum was building towards a new Australian Flora, including discussions about its format. In 1976 an important task for Alison was preparation of guidelines for contributors, in conjunction with Paul Wilson on secondment to Canberra from the W.A. Herbarium. In 1978, ABRS was given permanent status within the Department of Science, and the ABRS Advisory Committee was appointed. At its first two meetings in 1979 it recommended that a start be made on a concise (not monographic) *Flora*. In the same year a Flora Study Group was appointed, later to become the Flora Editorial Committee.

Alison became the secretary and so was closely involved with all the early planning, which included further developing the format and supervising a trial account, the family Brassicaceae prepared by Helen Hewson (later published in volume 8, 1982).

During this time Alison edited Nancy Burbidge's *Plant Taxonomic Literature in Australian Libraries*, published in 1978. She also assisted Nancy's nephew Andrew Burbidge in a biological survey of a proposed nature reserve Western Australia.

Although not a practising systematist, Alison had a very good understanding of the purposes and practices of this area of botany. As she did throughout her career, she applied herself wholeheartedly to the work. She was responsible for recruiting the initial staff for the three sections of the Bureau of Flora and

Fauna as it was then known (flora, fauna and biogeography), and carried most of the administrative responsibilities, allowing the editorial staff to concentrate on their principal roles. She had a good grasp of how the Australian Public Service worked. Unobtrusively, she played an important role in developing a cohesive staff which was a team from diverse backgrounds who enjoyed the stimulus of working together to establish major national projects.

In the early years we also benefitted greatly through the support and guidance of Sir Rutherford (Bob) Robertson, the first chairman of both the Advisory and Editorial Committees. Like Alison he was not a practicing systematist but was acutely aware of the need for the whole ABRs program.

In its first two years the Editorial Committee reviewed the format and approved the final format for the Flora. As we progressed with writing and editing, further details arose requiring decision; minor points we dealt with in-house, anything significant was referred to the Committee.

For volume 1 of the *Flora* Alison took responsibility for preparing the Glossary. She gave me much advice while I was writing the Background chapter. Both the format and the glossary were adopted later for the Species Plantarum Project (a project of the International Organization for Plant Information), the first part containing these published in 1999.

The lead-up to the publication of volume 1 was an exciting time, both in getting it ready for publication (which involved much liaison with the Australian Government Publishing Service) and arranging for it to be launched at the XIII IBC in Sydney (Fig. 1). The first copies of volume 1 arrived in Sydney two days before the launch, and Alison and I were invited to Bob Robertson's apartment overlooking the Harbour Bridge for a quiet celebration.

During those early years Alison helped to organise and run Flora workshops at which specialists from around the country discussed the state of knowledge for particular plant groups and what had to be done before a Flora treatment could be written. These were on *Acacia* (Fig. 2), Orchidaceae, Proteaceae, Asteraceae, Fabaceae and lichens. In conjunction with Les Watson at the Australian National University we also ran workshops on the DELTA program.

Alison made one early contribution to the *Flora*, the account of Rhizophoraceae in volume 22 (1984).

The year 1983 saw Alison move away from ABRs when she was transferred within the Department for six months, and in 1984 she was appointed Assistant Secretary of the Environment Strategy Division in the Department. She found time, however, to work with me in compiling an overview of Australian botanical literature, published as chapter 12, *Flora*, in D.H. Borchardt & V.

Fig. 1. *Flora of Australia* celebratory dinner, Sydney, 22 August 1981. Left to right: Bob Thorne (Rancho Santa Ana Botanic Gardens), Trevor Clifford (University of Queensland), Arthur Chapman (Bureau of Flora and Fauna, Canberra), Alison McCusker (BFF, Canberra), Andrew Kanis (Herbarium Australiense, Canberra).

Photo courtesy of Identity Studio, Sydney





Fig. 2. *Acacia* Workshop for *Flora of Australia*, Canberra, 1981. Seated: Mary Tindale (NSW), Arthur Court (MEL), Bruce Maslin (PERTH). Standing, left to right: Andrew Kanis (CANB), Arthur Chapman (BFF), John Maconochie (NT), Les Pedley (BRI), Jim Ross (MEL), Alex George (BFF), Alison McCusker (BFF).
Ph. A.S. George

Crittenden (eds), *Australians: A Guide to Sources*. At this time she left Canberra for a position with the FAO in Rome. On her return to retirement in Canberra in 1994 she offered her service as volunteer editor and flora writer with ABRS, an offer gratefully accepted. For the second edition of volume 1(1999) she helped to prepare the chapter 'Development of the *Flora of Australia* project' and updated her Glossary. She was acknowledged for editorial assistance in the grass volumes 43 (2002), 44B (2005) and 26 (2013), and she also made significant contributions to the text. For volume 43, Poaceae 1, she contributed the family description, a section on structure and variation in the grass plant, and a key to the tribes of Australian grasses. For volume 44B, Poaceae 3, she was joint contributor of *Triodia* (with M. Lazarides and C.M. Weiller), and *Eragrostis* (with J. Palmer, M. Lazarides and C.M. Weiller). The final volume that she helped to edit was volume 26, published in 2013.

Early volumes of the *Flora* gained very positive reviews, some from overseas, so we knew we had a world-class product. Much of the credit must go to Alison's input, guidance and administration in those early years.

Chronological list of Alison McCusker's botanical publications

- Smith-White, S. & McCusker, A. (1960), Spontaneous chromosome breakage in *Astroloma pinifolium*, *Proc. Linn. Soc. New South Wales* 85: 142–153.
McCusker, A. (1963), Gynodioecism in *Leucopogon*

melaleucoides A. Cunn., *Proc. Linn. Soc. New South Wales* 87: 286–289.

- McCusker, A. (1971), Knee roots in *Avicennia marina* (Forsk.) Vierh., *Annals of Botany* 35: 707–712.
Burbidge, Nancy T., ed. McCusker, A. (1978), *Plant Taxonomic Literature in Australian Libraries*, Australian Biological Resources Study, Canberra.
Burbidge, A.A., Fuller, P.J. & McCusker, A. (1978), *The wildlife of the proposed Wandana Nature Reserve, near Yuna, Western Australia*, Department of Fisheries and Wildlife Report No. 32, Department of Fisheries and Wildlife, Perth.
McCusker, A. (1981), Glossary, *Flora of Australia* 1: 169–197.
McCusker, A. (1984), Rhizophoraceae, *Flora of Australia* 22: 1–10.
McCusker, A. & George, A.S. (1987), Chapter 12, *Flora*, pp 94–103, in D.H. Borchardt & V. Crittenden (eds), *Australians: A Guide to Sources*, Fairfax, Syme & Weldon Associates, Broadway, N.S.W.
McCusker, A. (1999), Development of the *Flora of Australia* project, *Flora of Australia* (2nd edn) 1: 105–124.
McCusker, A. (1999), Glossary, *Flora of Australia* (2nd edn) 1: 585–636.
McCusker, A. (2002), Poaceae, family description, *Flora of Australia* 43: 1, 2.
McCusker, A. (2002), Structure and variation in the grass plant, *Flora of Australia* 43: 3–18.
McCusker, A. (2002), Key to the tribes of Australian grasses, *Flora of Australia* 43: 249–252.
Lazarides, M., Weiller, C.M. & McCusker, A. (2005), *Triodia*, *Flora of Australia* 44B: 203–256.
Palmer, J., Lazarides, M., McCusker, A. & Weiller, C.M. (2005), *Eragrostis*, *Flora of Australia* 44B: 346–409.

Death notice

Nick Smith

Nick Smith, known particularly to those of you who work in the tropics as the principal of Nelumbo Botaniks (Web ref.), died suddenly on 28th November 2015. Nick was involved in a number of popular plant publications as well as working as an ethnobotanist with strong links with a number of Aboriginal communities in northern Australia. His collections are

represented in a number of Australian herbaria. We hope to bring you a more comprehensive account of his botanical life in a future newsletter.

Web ref.: <http://www.nelumbo.com.au/>

New books

Welcome to the Anthropocene

Adventures in the Anthropocene: A Journey to the Heart of the Planet We Made.

By Gaia Vince. 2014

Chatto & Windus, London

436 pages;

ISBN: 9780701187354 (paper),

SAU37.99; ISBN 9780701187347

(HB), SAU55; ISBN 9781448128020 (e Book), SAU13.68

<http://www.nature.com/news/anthropocene-the-human-age-1.17085>

This book was published in 2014 and announced the winner of the Royal Society Winton Prize for science books (the equivalent of the Man-Booker prize for fiction) in 2015. It is available in three formats and reviews are readily available on the web (e.g. Web refs. 1, 2). The author's review of the damage wreaked by humanity within this new era is balanced by a study of some of the solutions which are being implemented in different parts of the world.

And if you are wondering what the Anthropocene is, although it seems self-evident, it is the name proposed for a new geological epoch recognising the impact of man on the planet (Web ref. 3). A working group set up in 2008 by the International Commission on Stratigraphy to establish whether or not the Anthropocene should be recognised and when it started is due to report in August 2016, although the name is already much used. There seems little doubt that the name will be adopted following the recent publication of a multi-

authored paper (Waters et al. 2016) indicating that the Anthropocene is functionally and stratigraphically different from the Holocene.

References

Waters et al. (8 Jan. 2016). The Anthropocene is functionally and stratigraphically distinct from the Holocene. *Science* 351 no. 6269. <http://science.sciencemag.org/content/351/6269/aad2622>

Web ref. 1: www.theguardian.com/science/2015/sep/23/adventures-in-the-anthropocene-by-gaia-vince-review

Web ref. 2: www.telegraph.co.uk/culture/books/bookreviews/10943061/Adventures-in-the-Anthropocene-by-Gaia-Vince-review-remarkable-stories-of-ingenuity.html

Web ref. 3: <http://www.nature.com/news/anthropocene-the-human-age-1.17085>

A history of use of Latin names

The Naming of the Shrew: A Curious History of Latin Names

By John Wright

Bloomsbury Publishing, UK.

November 2014

ISBN: 9781408816981(HB), SAU33;

ISBN: 9781408820353 (eBook), SAU15

Bloomsbury Paperbacks (Dec. 2015)

ISBN: 9781408865552, SAU20.

320 pages

There are many reviews on the web for this very favourably received book dealing with the Latin names of biological organisms. You might think that it wouldn't be too often that a book with such a title would make it on a site called "good reads" (Web ref. 1) but there seems to be an endless fascination with the topic. You can read the prologue and the first

chapter (“Why do we use Latin Names?”) on Google books (Web ref. 2) but for the rest you will need to buy it yourself or persuade your local library to do so.

Web references

- 1: www.goodreads.com/book/show/22313666-the-naming-of-the-shrew
- 2: <https://books.google.com.au/>

A history of the Royal Botanic Garden Sydney

The Royal Botanic Garden Sydney, The First 200 Years

Edited by Jennie Churchill.

Halstead Press, Ultimo, NSW. October 2015.

ISBN-13: 9781925043204

Price: AUD 65.00

Hardback (268mm X 218mm) 256 pages

<https://www.rbgsyd.nsw.gov.au/Join-Support/The-First-200-Years>

Royal Botanic Garden Sydney is 200 years old and they have published a book to mark the occasion.

The Royal Botanic Garden Sydney, The First 200 Years introduces the reader to the Garden's history and evolution, its plants and nature, its collections and collectors and its people and society. The stories inside are all fascinating, inspiring and surprising. [From the website].

Web sites of interest

New Zealand's *Plant Press*

The December 2015 issue of *Plant Press* will keep you up to date with activities at the Allan Herbarium in Christchurch.

Web ref.: <http://www.landcareresearch.co.nz/publications/newsletters/plantpress/issue-11>

IBC XIX web site

For updates on the International Botanical Congress in Shenzhen, China, here's the web site. The congress proper is timed for 23–29 July, 2017, with the nomenclatural sessions as usual in the prior week on 17–21 July.

Web ref.: <http://www.ibc2017.cn/>

PapuaWeb

PapuaWeb is an information network for students, researchers, development workers, community leaders, government agencies and others working on issues relevant to Papua, Indonesia (formerly Irian Jaya). The University of Papua, Cenderawasih University and the Australian National University, the project hosts, welcome contributions of research materials to enhance the resources of this website. [From the website: Web ref. 1].

I chanced across this site a couple of months ago when looking for d'Albertis's accounts of his expeditions in New Guinea (Web ref. 2).

Though it is some years since the site has been updated and it now has “*West PapuaWeb*” on the front page, it is a source of pdfs of some of the older New Guinea literature, which can be difficult to locate, as well as some of the theses being produced in the various universities.

An on-line book on PNG edible plants

Food Plants of Papua New Guinea: a compendium

By Bruce French, 2004

Sheffield, Tasmania: Published by the Author.

One of the more up to date contributions in *PapuaWeb* is on the edible plants of Papua New Guinea (Web ref. 3). You can download the whole book, or you can download as pdfs the individual chapters such as: food-root crops and staple foods; beans; edible green vegetables; root and other vegetables; nuts; fruits; and then minor foods and flavourings. Within each chapter plants are ordered roughly as to culinary importance or frequency of use, although taxonomically related groups are put together.

Web references

- 1: <http://papuaweb.org/>
- 2: <http://papuaweb.org/dlib/bk2/dalbertis/>
- 3: <http://papuaweb.org/dlib/bk/french/index.html>

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International calls. Australia +61, New Zealand +64, then drop leading zero from bracketed area code

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| CNS Tel: (07) 4232 1837 www.ath.org.au/ | NT tel: (08) 8951 8791 fax: (08) 8951 8790 www.lrm.nt.gov.au/plants-and-animals/herbarium | AK tel: (09) 306 7060 www.aucklandmuseum.com/collections-research/ | Australian University Herbaria Contact CHAH representative: Murray Henwood University of Sydney murray@bio.usyd.edu.au |
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ASBS publications

Australasian Systematic Botany Society Newsletter

Back issues

Back issues of the Newsletter are available from Number 27 (May 1981) onwards, excluding Numbers 29, 31, 60, 84–86, 89–91, 99, 100, 103, 137–139, and 144. Here is the chance to complete your set.

Australian Systematic Botany Society Newsletter No. 53

Systematic Status of Large Flowering Plant Genera

Edited by Helen Hewson, 1987

This Newsletter issue includes the reports from the February 1986 Boden Conference on the “Systematic Status of Large Flowering Plant Genera”. The reports cover: the genus concept; the role of cladistics in generic delimitation; geographic range and the genus concepts; the value of chemical characters, pollination syndromes, and breeding systems as generic determinants; and generic concepts in the Asteraceae, Chenopodiaceae, Epacridaceae, *Cassia*, *Acacia* and *Eucalyptus*.

Cost: Free for all newsletters except Number 53 (postage may be charged)

Cost: Number 53: \$5, plus \$1.75 postage (in Australia)

Cheques payable to “ASBS Inc.” Mastercard & Visa payments accepted.

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Enquiries: anna.monro@environment.gov.au Tel: (+61)/(0) 2 6250 9530

Evolution of the Flora and Fauna of Arid Australia (book)

Edited by W.R. Barker & P.J.M. Greenslade.

Peacock Publications, ASBS & ANZAAS, 1982

This collection of more than 40 papers will interest all people concerned with Australia's dry inland, or the evolutionary history of its flora and fauna. It is of value to those studying both arid lands and evolution in general. Six sections cover: ecological and historical background; ecological and reproductive adaptations in plants; vertebrate animals; invertebrate animals; individual plant groups; and concluding remarks.

Cost: \$20, plus \$10 postage (in Australia).

This book is almost out of print. There are a few remaining copies.

To order a copy of this book email Bill Barker at: bill.barker@sa.gov.au

History of Systematic Botany in Australasia (book)

Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990

For all those people interested in the 1988 ASBS symposium in Melbourne, here are the proceedings. It is a well presented volume, containing 36 papers on: the botanical exploration of our region; the role of horticulturalists, collectors and artists in the early documentation of the flora; the renowned (Mueller, Cunningham), and those whose contribution is sometimes overlooked (Buchanan, Wilhelmi).

Stocks no longer available.

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

The Society

The Australasian Systematic Botany Society is an incorporated association of over 300 people with professional or amateur interest in botany. The aim of the Society is to promote the study of plant systematics.

Membership

Membership is open to all those interested in plant systematics. Membership entitles the member to attend general meetings and chapter meetings, and to receive the Newsletter. Any person may apply for membership by filling in a "Membership Application" form, available on the Society website, and forwarding it, with the appropriate subscription, to the Treasurer. Subscriptions become due on 1 January each year.

The ASBS annual membership subscription is AU\$45; full-time students \$25. Payment may be by credit card or by cheques made out to Australasian Systematic Botany Society Inc., and remitted to the Assistant Treasurer. All changes of address should be sent directly to the Assistant Treasurer as well.

The Newsletter

The Newsletter is sent quarterly to members and appears simultaneously on the ASBS Website. It keeps members informed of Society events and news, and provides a vehicle for debate and discussion. In addition, original articles, notes and letters (not exceeding ten published pages in length) will be considered. Citation: abbreviate as *Australas. Syst. Bot. Soc. Newslett.*

Contributions

Send copy to the Editor preferably by email attachment submitted as: (1) an MS-DOS file in the form of a text file (.txt extension), (2) an MS-Word.doc file, (3) a Rich-text-format or .rtf file in an email message or attachment or on an MS-DOS disk or CD-ROM. Non-preferred media such as handwritten or typescripts by letter or fax are acceptable, but may cause delay in publication in view of the extra workload involved.

Formatting of submitted copy. Please use Word formatting buttons for paragraph indents, bullets, etc. and for tables. All text must be in upper and lower case; e.g., do not use upper case for titles, headings or authors in reference lists. Do not format primitively with tabs, which change with the Normal style sheet. If embedding tables or references or other Objects from other software (Excel, bibliographic software, etc.) ensure that these are converted to Word tables or paragraphs. Letters in abbreviations of Australian States (SA, WA, etc., but Vic., Qld) and organisations (e.g. ASBS, ABRIS) should not be separated by full-stops, but initials should be (e.g. W.R. Smith, not WR Smith).

Images. Send images individually with captions in accompanying text document or email, not arranged in composite. Do not include them embedded in a text file. If you do, you will be asked for them separately. Inclusion of images supplied may depend on space being available. Resolution needs to suit press as well as web publication. So improve scanned resolution if printing your image is pixellated at a width of at least 7 cm (up to a 15 cm full page). Contact the Editors for further clarification.

The deadline for contributions is the last day of February, May, August and November. All items incorporated in the Newsletter will be duly acknowledged. Authors alone are responsible for the views expressed, and statements made by the authors do not necessarily represent the views of the Australasian Systematic Botany Society Inc.

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Advertising

Advertising space is available for products or services of interest to ASBS members. The current fee is AU\$200 per full page, \$100 per half-page or less.

Flyers may be approved for inclusion in the envelope for products or services of interest to ASBS members. The current fee is \$200 per flyer, plus the cost of inserting them (usually roughly \$50). Flyers are not part of the Newsletter and do not appear with the Newsletter on the ASBS Website.

A 20% discount applies for second and subsequent entries of the same advertisement. Advertisements from ASBS members are usually exempt from fees but not the insertion costs in the case of a flyer. Contact the Newsletter Editors for further information.

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